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INSTITUTE ON CRITICAL ISSUES IN VOCATIONAL AND TECHNICAL TEACHER EDUCATION IN SMALL COLLEGES AND UNIVERSITIES. CENTER SEMINAR AND CONFERENCE REPORT NO. 8.

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NORTH CAROLINA UNIV., RALEIGH, N.C. STATE UNIV.

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THIRTY PARTICIPANTS INCLUDING TEACHER EDUCATORS AND ADMINISTRATORS ATTENDED A 2-WEEK TEACHER EDUCATION INSTITUTE DESIGNED TO CONSIDER CRITICAL ISSUES IN VOCATIONAL AND TECHNICAL EDUCATION AND THEIR IMPLICATIONS FOR PROGRAMS OF TEACHER PREPARATION IN SMALL COLLEGES AND UNIVERSITIES. THE PRESENTATIONS BY SPECIAL CONSULTANTS WERE--(1) "CRITICAL ISSUES IN VOCATIONAL AND TECHNICAL EDUCATION" BY J. KAUFMAN, (2) "PURPOSES, POLICIES, AND ORGANIZATION OF TEACHER-EDUCATION" BY H.G. BEARD, (3) "RESEARCH DEVELOPMENT GRANTS AND SMALL PROJECT RESEARCH," BY J. MORROW, (4) "PLANNING AND STRATEGIES FOR DEVELOPING MORE EFFECTIVE TEACHER EDUCATION PROGRAMS" BY R.M. WORTHINGTON, (5) "IDENTIFYING AND UTILIZING HUMAN AND INSTITUTIONAL RESOURCES FOR THE DEVELOPMENT OF TEACHER EDUCATION PROGRAMS" BY L.W. JONES, (6) "DEVELOPING COLLEGE-INDUSTRY COOPERATIVE PROGRAMS IN VOCATIONAL TEACHER EDUCATION" BY G.H. SILVIUS, (7) "IDENTIFYING, INTERPRETING, AND IMPLEMENTING RESEARCH FINDINGS IN TEACHER EDUCATION TO IMPROVE THE PRE-SERVICE PROGRAM" BY G.Z. STEVENS, (8) "RECRUITMENT OF STUDENTS FOR TEACHER EDUCATION PROGRAMS" BY C.E. DEAN, (9) "RECRUITING, UPGRADING, AND DEVELOPING ADEQUATE FACULTY IN THE SUBJECT AREAS WITH SPECIAL REFERENCE TO OCCUPATIONAL ORIENTED SKILLS" BY R.D. MORRISON, (10) "UPGRADING AND DEVELOPING ADEQUATE FACULTY IN SUBJECT AREAS WITH SPECIAL REFERENCE TO OCCUPATIONAL ORIENTED SKILLS" BY G.F. RANKIN, AND (11) "THE ROLE OF NEW MEDIA IN TEACHER EDUCATION" BY D.R. YOUNG AND S. BEECRAFT. ALSO INCLUDED ARE (1) A SUMMARY REPORT OF SMALL GROUP SEMINAR SESSIONS, (2) A PAPER, "RESEARCH DESIGN IN AGRICULTURAL EDUCATION" BY G.Z. STEVENS, (3) THE INSTITUTE PROGRAM AND A LIST OF PARTICIPANTS, (4) DEFINITIONS, AND (5) CRITICAL ISSUES TO START DISCUSSION. (HC)

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NSTITUTE ON CRITICAL ISSUES IN VOCATIONAL AND TECHNICAL TEACHER EDUCATION IN SMALL COLLEGES AND UNIVERSITIES

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AT GREENSBORO

SPONSORED BY
NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY
AND
THE CENTER FOR OCCUPATIONAL EDUCATION

Center Seminar and Conference Report No. 8

CENTER FOR OCCUPATIONAL EDUCATION
NORTH CAROLINA STATE UNIVERSITY AT RALEIGH
1967

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INSTITUTE ON CRITICAL ISSUES IN VOCATIONAL AND TECHNICAL TEACHER EDUCATION IN SMALL COLLEGES AND UNIVERSITIES

Project No. 7-0348
Grant No. OEG-2-7-070348-2698

A. P. BELL
Institute Director

1967

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The seminar reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Center Seminar and Conference Report No. 8

CENTER FOR OCCUPATIONAL EDUCATION
North Carolina State University at Raleigh
Raleigh, North Carolina

PREFACE

The growing demand for teachers in occupational education dictates that universities and colleges resources be addressed to the problem of providing an adequate source of highly trained teachers. U. S. Office of Education projections indicate that the number of students enrolled in teacher education programs in vocational education at the preservice level should be increased from 39,000 in 1966 to 121,000 by 1975. Data from the same source indicates that the number of teachers in vocational and technical education programs may be expected to increase from 125,000 in 1966 to 350,000 by 1975.

To resolve the problem of preparing an adequate number of teachers, all available alternatives must be explored to accomplish the mission. On the surface it seems likely that if the additional teachers are to be produced, additional financial resources must be invested in the teacher education programs. There may be alternatives not yet explored fully. It is entirely possible that the problem of producing an adequate number of teachers may be resolved by redesigning teacher education programs and by reallocating existing human resources in teacher education programs in colleges and universities.

The small colleges and universities have a vital and significant role in the preparation of teachers in the decade ahead. They may not command the physical and material resources of the larger universities, but for many teacher education is their main business. They may be in a more favorable position to experiment and innovate. Indeed, lack of financial resources may force them to examine more closely existing patterns and to devise ways by which existing resources may be reallocated. The raw potential of the small college and university that may be energized to meet the needs for teachers in the decade ahead and the immense potential for experimentation and innovation that exists in these institutions were the major factors that led the Center for Occupational Education to join with North Carolina Agricultural and Technical State University in sponsoring this institute. Acknowledgment is due to Dr. Lewis C. Dowdy, President; Dr. Glenn F. Rankin, Dean of Academic Affairs; and Dr. Burleigh C. Webb, Dean of the School of Agriculture of North Carolina Agricultural and Technical State University for their roles in creating the climate in which this institute could be conducted. Special commendation is due to Dr. Arthur P. Bell who served as institute director and to the members of the program planning committee who included Mr. C. E. Dean, Mrs. Bernice Johnson, and Dr. Charles W. Pickney of North Carolina Agricultural and Technical State University; Mrs. Phyllis Greenhouse of the Agricultural, Mechanical, and Normal College in Arkansas; and Dr. H. G. Beard and Dr. Charles H. Rogers of the Center for Occupational Education. Dr. Rogers, as Coordinator of Services and Conferences for the Center, and Dr. H. M. Hamlin, Special Consultant to the Center, worked closely with the planning committee in conducting the institute. Dr. Hamlin made a notable contribution to the institute through preparing the group reports. Finally, appreciation is expressed to the consultants who prepared manuscripts for this publication and whose names appear in this publication.

John K. Coster, Director
Center for Occupational Education

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INTRODUCTION

The great surge in technology over the past quarter of a century, together with the increasing complexities of contemporary society, has produced new problems and challenges for education. Many of these problems and challenges have had special implications for educators in occupational education. Moreover, the Vocational Education Act of 1963 and other legislation have provided legal and financial means by which needed and new directions may be taken. These programs have made possible innovative concepts that have gained widespread acceptance.

Many small colleges and universities, by virtue of their size, encounter problems, unique to them as a group when they attempt to improve the effectiveness of established programs or to develop new programs in occupational education. That the unique problems which plague teacher education programs in the saml1 colleges and universities can be resolved and that inertia now present in conventional programs can be overcome, became the major theses of the Teacher Education Institute, sponsored by the North Carolina Agricultural and Technical State University and the Center for Occupational Education of North Carolina State University at Raleigh.

The Teacher Education Institute was designed to consider critical issues in vocational and technical education and their implications for programs of teacher preparation in small colleges and universities. Attention was focused also on finding solutions to the many problems confronting teacher education programs in occupational education in the small educational institutions.

During the two-week institute, eleven topics were presented by special consultants, and the president of A & T State University spoke at the banquet. These presentations were followed by seminar discussions and seminar reports. In this manner the participants were enabled to explore in depth the concepts presented each day, and later, to develop action programs. The discussions were directed toward: (1) the development of strategies for change in teacher education programs and the examination of the role of the participants as change agents in the process; and (2) the evolvement of an organizational structure, and the consortium, that would allow small colleges and universities to effect changes in teacher education programs.

The papers contained in the following section of this report represent the major presentations and content of the institute. Several sessions of the institute were devoted to group discussion, panels and small group activities. No formal papers were prepared for these sessions. However, the outcomes of these sessions are included in the summary report of the seminar sessions.

The participants in the institute included teacher educators and administrators in agricultural education, business education, home economics education, and trades and industrial education in small colleges and universities; to these latter and to the many others who participated in the success of the institute are accorded a sincere word of thanks.

Hopefully, the work of the institute as reflected in the pages of this final report will contribute in some small way to the betterment of the teacher education programs at the small college and university.

A.P.B.

MAJOR OBJECTIVES

1. To determine changes in teacher education programs in the small colleges and universities that should be made in light of changing technology and occupational requirements.

2. To generate a meaningful dialogue between national and/or regional leaders in vocational-technical education and teacher educators in the small colleges and universities on current issues and policies affecting vocational education, with implications for the small colleges and universities of the region.

3. To determine how resources within and external to small colleges and universities can be utilized most effectively in teacher education programs and to encourage the development of an association (or associations) of small colleges and universities for these ends.

4. To provide a setting for the discussion of common problems related to vocational education among institutions of comparable size and resources and provide the opportunity to think through these problems and work toward innovations that offer some hope for their resolution.

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CRITICAL ISSUES IN VOCATIONAL AND TECHNICAL EDUCATION

Jacob J. Kaufman, Professor of Economics and Director
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It is the basic thesis of this paper that:

1. Society has made a commitment, by authorizing the expenditure of substantial sums of money, that education of all types is the vehicle through which we can break out of the cycle of unemployment and poverty. With a commitment of such substantial resources it is legitimate to raise the basic question of whether these resources are achieving this objective and, if not, to seek alternative means of achieving this objective.

2. We are confronted today, and during the coming years, with an increasing number of youth entering the labor force and a relatively high rate of unemployment among the youth of our country. This raises the appropriate question of whether our schools are meeting the occupational needs of our youth.

3. Vocational and technical education, which today serves only a small proportion of the youth enrolled in the secondary schools, has a unique opportunity to apply certain aspects of its "know-how" to a broader segment of the student population, particularly the very substantial group of probably 50 per cent who today are not being reached by the academic or vocational curricula. This group consists of potential dropouts or those consigned to the general curriculum, which is not a curriculum but a potpourri of courses which have usually no objective.

4. To accomplish this, it is necessary to reexamine the role of teacher education--particularly in the vocational education area--in

training administrators and teachers and in developing new curricula to meet the occupational requirement of the youth enrolled in our secondary schools.[1]

5. the small colleges have, because of certain resource limitations, an opportunity to develop new programs for teachers and curricula, and have in effect, taken advantage of this limitation.

Society's Commitment to Education

As a result of legislation enacted during the past five years, particularly at the federal level, it is quite evident that the administration looks at education as the means by which the cycle of unemployment and poverty can be broken. The objectives are clearly set forth in the legislation.

The Manpower Development and Training Act of 1962 recognized that certain segments of our population have relatively high rates of unemployment, that many skills have become obsolete, and that training should be made available to those who must acquire new skills in order to survive in a dynamic society.[2]

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[1] For a detailed discussion of vocational education and some of its problems see Jacob J. Kaufman, Carl J. Schaefer, Morgan V. Lewis, Davis W. Stevens, and Elaine W. House, The Role of the Secondary Schools in the Preparation of Youth for Employment. Institute for Research on Human Resources, The Pennsylvania State University, February, 1967.

[2] Jacob J. Kaufman, Grant N. Farr, and John C. Shearer, The Development and Utilization of Human Resources: A Guide for Research, Institute for Research on Human Resources, The Pennsylvania State University, July, 1967. This paragraph and others that follow are taken, in part, from this publication.

The Economic Opportunity Act of 1964 declared that one of its objectives was the elimination of "the paradox of poverty in the midst of plenty in the Nation by opening to everyone the opportunity for education and training, the opportunity to work, and the opportunity to live in decency and dignity."

The Vocational Act of 1963 seeks, among other things, "to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education," and to provide combinations of education and employment so that persons of all ages may "have ready access to vocational training or retraining which is of high quality; which is realistic in the light of actual or anticipated opportunities for gainful employment; and which is suited to their needs, interests, and ability to benefit from such training."

Finally, reference should be made to the recommendations contained in the report of the National Commission on Technology, Automation, and Economic Progress, issued in 1966. This commission called for more extensive and better education designed to obtain a better match between men and jobs.

This recital of selected statements is designed to emphasize the fact that there has been public recognition of the fact that education has a responsibility to change and improve its methods so that persons of all ages can fit into society and make their contribution to it by working at their highest potentials. It seems to me that teachers in the field of teacher education have a heavy responsibility to reexamine their methods and approaches and to make certain that the products of their work are trained in a manner which will contribute to the objectives and recommendations cited above.

The Dynamics of the Labor Force

It has been noted that the recently revised issue of the Dictionary of Occupational Titles (1965) contained a listing of 22,000 different occupations of which 6,000 were new (as compared with the 1949 edition and its supplement of 1955). Similarly, it has been noted that over 8,000 jobs which were described in the 1959 edition were eliminated from the 1965 one. Obviously, this does not mean that all of these jobs have been eliminated in industry, since they might appear under new names. But these figures are an index of the rapidly changing economy in which we live.[3]

As we look back over the years we find many other significant changes, such as:[4]

1. At the turn of the century over one-third of the work force was engaged in agriculture. Today only five per cent are so engaged.

2. Self-employment in our society has declined significantly so that today 90 per cent of the work force receives a wage or salary.

3. There has been a significant shift in industry and population to the South, the Southwest, and the West.

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[3] American Federationist, July 1967.

[4] *Ibid*.

4. Workers have become increasingly mobile in terms of geography, occupations, and jobs.

5. There has been a sharp shift away from blue-collar jobs in factories to white-collar jobs in the service industries.

6. Great changes are taking place in educational and skill requirements for jobs.

7. Women are participating in the labor force at increasing rates.

One should examine each of these shifts--and the list is not inclusive--and ask the basic question: To what extent has vocational and technical education adjusted to these sharp changes in our society? What adjustments have taken place in curriculum, methods of teaching, and methods of teaching future teachers? It is not unfair to assert that vocational and technical education has not made the necessary adjustments to the dynamism of our society. Certainly, some adjustments have been made, but to a large extent they have been adjustments within an existing framework of thinking rather than in terms of some radical revisions in approaches to occupational training.

This has been particularly serious in view of the fact that the needs of the majority of the youth attending schools are not being met by the existing academic and vocational curricula, a point which will be discussed below. In addition, it can be asserted that over the years we have developed a better understanding of the needs, expectations, and aspirations of youth and this understanding has not been reflected in the educational programs. It is essential that schools concerned with teacher education take account of these factors and adjust their programs accordingly. The school administrators and teachers must also adapt their curriculum and methods of teaching in the light of the current needs of youth and the increased knowledge we have of these youth.

What are the bases for these assertions? Let us look at some of the facts.

We know that unemployment hits our youth in a disproportionate manner as compared with other groups in society. Their rate of unemployment is from two to three times greater than the average for the work force as a whole.

We know that the rate of unemployment of school dropouts is twice that for graduates and the earnings of dropouts are significantly lower.

We know that the new jobs in society are in white-collar and service occupations which, typically, are not ports of entry for young men and women, particularly school dropouts.

As was pointed out in a study prepared by the Institute for Research on Human Resources of the Pennsylvania State University:

> There is much evidence to support the growing contention that the educational system is too aristocratic, geared to the needs, aspirations, and goals of the winners in society, to those whose values, resources and experiences point them in the direction of occupations, skills, and career objectives which are acceptable and encouraged. For the high school student who for various reasons falls short of acceptable and recognized standards, the view of the road ahead is blurred and indistinct, and the obstacles appear formidable. The schools have not found reasonable answers to the problems of these students who fail to fit the conventional standards of the school system; the result for such students is either discouragement and dropping out or consignment to an ambiguous status as a general curriculum student.[5]

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[5] Kaufman _et al._, _op. cit._, p. 29.

The major challenge to the schools is to find solutions to those students who are lost in the school environment.

One segment of these students has been described in various phrases such as "culturally deprived," or "culturally disadvantaged." A better phrase would be "culturally different" or, better still, "culturally incompatible." The latter two phrases involve no value judgment as to which culture is to be preferred. We must be conscious of different cultures and ask the question whether our educational system takes account of these different cultures or whether it assumes that all students come from the same culture. It seems to me that the educational system--teacher training, teaching, and the curriculum--operate on the latter assumption.

A second segment of students who are lost in the school environment includes those who are not necessarily "culturally deprived" or "culturally incompatible"--although they may have some of the characteristics of this group, to a greater or lesser extent--but who are generally nonverbal, career oriented, and who are from a family background which does not stress the emphasis found in most schools on grades, promotion, preparation for continuing education, denial of immediate gratification, etc. In general, this group sees little relevance between their needs and aspirations and the content of the curriculum.

The Unserved Youth

It has been asserted that "vocational education from its beginning has taken care of a relatively small group of students."[6] Probably not more than 15 per cent of the students have been involved in vocational and technical education. If we assume that about 35 per cent of high school graduates go on to college, we are left with 50 per cent who receive no occupational training. A significant portion have, in varying degrees, certain characteristics of the "culturally incompatible." What are these characteristics? One psychologist has described them in the follow manner:

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[6] Dale C. Draper, Educating for the World of Work, The National Committee on Secondary Education, 1967, p. 24.

1. " . . . It means very often to be biologically deprived, and, as a result of this and other training factors, unable to delay gratification."
2. " . . . (It) means to have a lower score on an intelligence test. (This is not to say that a culturally deprived individual has a reduced intelligence . . .) . . . The low score is not native but experiential."
3. " . . . (It means) an absence of achievement motivation . . . the desire on the part of an individual to achieve either for the intrinsic satisfaction associated with achievement, or for the rewards society metes out as a function of achievement behavior."
4. " . . . (It means) unfavorable attitudes toward self, others, and society, which, in turn, may result in delinquent behavior."[7]

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[7] Bruce W. Tuckman, "The Teacher and the Psychology of the Culturally Deprived," in Preparing Teachers of Disadvantaged Youth, John L. O'Brian, ed., Department of Vocational-Technical Education, Rutgers - The State University, 1966.

These are characteristics described as being applicable to the group described as "culturally deprived." There is another group of students who do not find either the academic curriculum or the vocational curriculum relevant to their goals in life. It is being argued that the training of school administrators and teachers is limited by the fact that they have not been fully exposed to the background and psychology of these students or, if they have been exposed to it, have not fully grasped it, or if they have grasped it, have not fully applied it in their professional work. It is also being argued that the educators have not found the curriculum which is relevant to the second group of students.

The Training of School Administrators

Given (1) the commitment of society, as described earlier; (2) the dynamic aspect of our society; and (3) the development of new knowledge in the various social and behavioral sciences it would appear that the schools and colleges of education should reexamine their curriculum for the group of college students who will probably go on to school administration at the undergraduate and graduate levels.

What is being called for is "a new breed of leadership" which is not only concerned with vocational and technical education in a narrow sense, i.e., "specialized education for an occupation other than a technical occupation or a profession" but also concerned with occupational education, i.e., "education designed to contribute to occupational choice, competence, and advancement." In fact, one might go beyond this and urge administrators to be aware of the role of technology in the learning process itself, regardless of its applicability to vocational or occupational training.

At a conference held at Rutgers - The State University in 1966 a series of papers was presented by representatives of the social and behavioral sciences designed to set forth the role of these disciplines in the training of leaders in vocational education.[8]

In one paper it was suggested that:

> . . . leaders in the field of vocational and technical education should have training in the field of economics so that (1) they can understand the complications of a dynamic society which calls for new skills; (2) they can develop the appropriate curricula to meet these new demands; (3) they are capable of making intelligent decisions among the many demands which are made for funds for programs; (4) they are competent to develop and understand research conducted in their areas in order to develop appropriate vocational and technical education programs.[9]

A psychologist, at the same conference, indicated that:

> Leaders in technical and vocational education can no longer follow their specialized and narrow roles . . . they must be specialists in vocational education and behavioral scientists as well. This is necessary because they must be able to understand and assess trends of environmental and social change. They must be trained to be competent consumers of behavioral science research if not researchers themselves. They

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[8] The Advanced Degree and Vocational-Technical Education Leadership, Department of Vocational-Technical Education, 1966

[9] Ibid., Jacob J. Kaufman, "The Role of Economics in the Training of Leaders in the Field of Vocational and Technical Education."

> must be able to comprehend the complex interrelationships of our social system and its many components subsystem and to appraise system change in terms of new inputs and resulting organizational modification. They must be able to relate their own profession to industry, to government, and to education in general. They should be able to conceptualize the new emerging relationships and set new goals for their field.[10]

In the field of sociology it is suggested that potential leaders or administrators in education be provided "with a framework with which to view their world and their own place in it."[11] Sociology attempts "to understand the world of human relations . . . and to provide classification of and corrective solutions for the great problems and issues of societal life."[12] This requires the exploration of six questions, as listed by a sociologist:[13]

"1. What are the ways that the members of American Society really behave?

2. What are the ideologies, goals, and values (actual and professed) which members of American society hold?

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[10] Ibid., Daniel Katz, "A Doctoral Program in Vocational Education as a Behavioral Science."

[11] Ibid., Bernard Goldstein, "The Advanced Degree and Vocational-Technical Education Leadership: A Sociological Perspective."

[12] William M. Phillips, Jr., "Inventing and Education for Teachers" in Preparing Teachers of Disadvantaged Youth, op. cit.

[13] Ibid.

3. What are the main social structures or entities into which members of American society organize themselves, and what are the natures of the connections between such entities and their consequences?
4. What are the principal agents, agencies, and channels of change among members of American society?
5. What are the unsolved, unresolved, persistent, and recurrent problems or failures of the members of American society?
6. What behavior models of deviance and conformity do we observe among the members of American society?"

Here are three views presented by representatives of three social or behavioral sciences concerning the kinds of issues with which educational leaders should be concerned. Whether or not the training of educational administrators takes this direction is unknown. But it would not be unreasonable to ask schools of education to evaluate their programs in these terms and, if their programs are deficient, to modify them.

It would seem that the training of an educational leadership for the vast majority of students who go into the world of work (and not higher education) would require the development of new programs along the lines indicated above.

The Training of Teachers

To what extent is the training of teachers adapted to the needs of the majority of the students who do not come from middle-class backgrounds and may not have acquired the middle-class values which are characteristic of most teachers?

In discussing teacher training a sociologist has stated that there are:

> four ingredients of teacher training and behavior (which) are indispensable . . . to be committed to caring for each child equally; to knowing how to relate to children around experiences and materials relevant to developmental objectives; to have the widest command over ranges of materials and experiences that might be relevant; and to be free to learn continuously, to innovate, to experiment, to deepen their understandings, in short, to grow with the children. These are . . . what good teachers must have.[14]

In the training of teachers for those students who are work-bound rather than college-bound it is essential that the members have the same psychological and sociological training suggested for educational administrators. It is also essential that the characteristics listed above be developed in the potential teachers. To what extent can schools of education claim that they have achieved these objectives? If not, what must be done to develop curricula and teaching methods to achieve them? These are questions which teachers of potential teachers must discuss among themselves and develop appropriate plans.

Even if the teachers can come to a consensus of these points, are there institutional obstacles in developing a new curriculum of future teachers? How can they be overcome? These, too, are difficult questions and problems worthy of consideration.

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[14] Melvin Tumin, "Teaching in American," paper delivered at the Fifth Annual Conference of the National Committee for Support of the Public Schools, April 3, 1967.

A New Curriculum for Youth

In discussing the question of "Making Education Relevant," Marvin J. Feldman has asserted that "vocational education is . . . an approach to the disciplines and the learning process which, properly used, could reconstruct the American educational system . . ."[15] The key word in this quotation is "approach." Vocational education is seen here to be a means toward education rather than an end. He adds that vocational "education should be redefined at least in part as that aspect of an educational experience which helps a person discover, define, and refine his talents, and to use them in working toward a career."[16]

One could characterize a large number of students attending the school systems as being non-verbal, career-oriented, and having low self-esteem. The general orientation of education in general is toward students who are verbal, college-oriented, and who have positive self-concepts. Many students cannot survive under the traditional practices of grading, punishment, and promotion. Yet our educational system is built on these practices. Many students cannot accept the middle-class value of sacrifice in the present for gains in the future, but instead require immediate gratification. Yet our educational system is based on the middle-class value of current sacrifice for future gain.

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[15] Ford Foundation pamphlet issued in 1966. (The emphasis added is mine.)

[16] Ibid.

If one is to create an educational system which meets the needs of the majority of our youth in our school system it is essential that their psychology be understood and a curriculum be developed which would make them more compatible in a middle-class society. What curriculum changes should be considered?

A number of experimental programs have been conducted throughout the country. (The Richmond Plan, the Pre-Technology Program, etc.)[17] It is not the purpose to describe these programs in this paper, but it might be of value to indicate the general concepts that permeate them. These include:

1. Technology is used as a means by which learning can take place.

2. Teachers are used for the purpose of preparing materials for learning and not for teaching. The assumption is made that youth has the ability to learn provided the materials are made available.

3. Interdisciplinary teaching is encouraged so that the shop work and the other disciplines (e.g., science, mathematics, social studies, and English) are all interrelated in the learning process.

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[17] Dale Draper, *op. cit.*, pp. 44 ff.

4. Teacher planning is encouraged; i.e., a group of teachers is given the opportunity and time to plan the work for the students.

5. Students are given options in terms of the degree of intensiveness into which they want to go into a subject as well as the means (e.g., library, film strips, laboratory work) by which they can study.

6. Teachers are taught to recognize that youth have varying abilities and styles of learning.

7. Youth are exposed to a variety of experiences.

In this type of curriculum vocational education can play a significant role provided it conceives of its role as being part of an educational team designed to prepare youth for a world of work and not as being part of a program which stresses narrow, specialized skills.

Can the schools of education and the schools themselves develop this type of curriculum? Here lies the challenge, particularly to vocational education.

Conclusion

This paper has raised more questions than can be answered. But it is up to the educators to provide the answers. The smaller schools of education, with limited resources and personnel, are in a position to pursue the training of teachers on the broad basis suggested. Can they rise above their institutional vested interests and place the needs of youth above these interests? If teachers cannot do this, no one else in our society can.

PURPOSES, POLICIES AND ORGANIZATION OF TEACHER-EDUCATION

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Introduction

In accordance with the purposes of this Institute, emphasis will be given in this paper to vocational and technical teacher education in small colleges and universities. This emphasis upon vocational and technical teacher education and upon the situations found in small colleges and universities, if our discussion of teacher education is to be efficient, requires that we give some attention to differences between vocational and technical teacher education and other kinds of professional training in education and to differences between large and small institutions. In this paper I will first list several areas of such differences. Secondly, I will introduce briefly what I call a strain-producing situation in vocational and technical teacher education between the increasing demand for such teachers and the requirements of professionalization. Thirdly, I will present a framework of concepts for the terms purposes, policies and organization of teacher education. Finally, internal and external relationships in policy-making for teacher education will be discussed.

The objective of this presentation is to assist all of us here to gain a better understanding of the policy-making process so as to encourage continuing improvement in policies for teacher education in small colleges and universities. It is assumed that ideas expressed in this paper will be discussed in sessions of the Institute to be held later today.

Vocational and Technical Teacher Education In Small Colleges and Universities

Relative to the work situation represented by vocational and technical education in small colleges as this differs from other teacher education situations, I call your attention to the following points:

(1). Vocational and technical teacher education versus other functions of colleges and universities. How can we separate vocational and technical teacher education from other kinds of teacher education? How can we give recognition to the fact that vocational and technical teacher education is a cooperative venture on campus involving many departments and many faculties in addition to those departments and faculties called vocational and technical education? How can we treat the several kinds of vocational and technical teacher education as one in our discussion? How does the teacher education function relate to other functions of the institution? In a study of vocational and technical teacher education, we should not practice isolationism. Neither should we be so general in our comments as to be unable to identify problems which beset vocational and technical teacher education.

(2). The education of teachers versus the education of a broader clientele in vocational and technical education. What occupations other than teacher are to be found as we observe vocational and technical education programs? Are we concerned with administrators in vocational and technical education programs, or supervisors, planners, research workers and directors? Perhaps a better term for our topic than vocational and technical education would be the education of professional occupational education personnel.

(3). Small institutions versus large institutions. In an attempt to improve teacher education through a consideration of its purposes, policies, and organization, what key differences between large and small institutions should be considered? What is the relative position of the small college and university in the world of teacher education?

(4). Private versus public institutions. Does the private-public question matter in our discussions? Of course, it is interesting to note that representatives of both private and public institutions are present in this Institute. Are there differences in obligations between private and public institutions? Are there differences between private and public institutions in the way that decisions are made?

(5). Educating personnel for elementary and secondary schools versus educating personnel for area schools. Many of our area schools are comprised of grades 13 and 14. By definition, the organization and, to a lesser extent, the purposes of area schools differ from the purposes and organization of elementary and secondary schools. Are the relationships between the institutions and the secondary and elementary schools the same as the relationships between the institutions and the area schools?

(6). Relationships to other agencies. In a discussion which emphasizes the training of professional personnel in occupational education by small colleges and universities, is there a unique relationship between such institutions and other agencies? Do relationships with federal agencies, with state departments of education, and with other state agencies change when the subject matter becomes occupational education and when the institution is a small college or university?

The foregoing precepts should be kept in mind for the purposes of our discussion and as a background for our consideration of purposes, policies and organization in the preparation of professional occupational education personnel.

A Strain-Producing Situation

Over the past few years there have been significant efforts to improve, expand, and redirect educational programs which prepare for work and upgrade the skills needed in modern jobs. This movement is associated with the demands for education *per se* in the development of human resources, and with the function of schools as agents of the state in the reduction of unemployment and underemployment in economic and social development. There are thousands of vacant positions in occupational education across the southern states alone. These positions are being filled by graduates of certified teacher education institutions, by specialists from industry, by specialists from the military services, and by others who have the technical qualifications required, irrespective of their formal training. On the other hand, there are the expected efforts on the part of teachers and administrators to professionalize these occupations; i.e., there are efforts to maintain a foundation of expertise based on formal training and uniform certification. Such formal training results in an internalized code of ethics. Other classic professional values to be promoted are student interests over self-interests, self-controls over external controls, and universal over particular standards. In the context of the strain between a strong demand for personnel and the restraints imposed by the professionalization movement, relevant questions seem to be: How is the system accommodating to this strain and what implications can be seen for the performance of small colleges and universities in the training of occupational education personnel? Changes in the system occurring because of this strain would certainly have implications for purposes, policies and organization of occupational education programs in the small colleges and universities. It is recommended that this question of system accommodation be considered in the discussion period of this Institute. It is also recommended that this question be kept in mind as the remainder of this paper is presented.

A Framework of Concepts

In discussing organizational life, it is generally difficult to define the term "policy" and it is generally difficult to distinguish between institutional policies and procedures. Also, it is difficult to talk about institutional purposes. At the outset, it is suggested that both the purposes and the organization of a particular institution be defined as "policy matters." Using this framework, the topic of this paper is interpreted to mean policies for occupational education programs in small colleges and universities with particular emphasis upon those policies which relate to purposes and to mode of organization. Policy matters then are "big" matters, and an institution which is guided by clear policies can operate at a much higher level than an institution which depends solely upon day-to-day decisions. It is not that policy questions are more important than procedural questions; it is simply that policy matters are more general than procedural matters. Also, the distinction provides a basis for divisions of labor. And, of course, divisions of labor have vast implications for training programs.

In Fig. 1. is shown the distinction we make between policyless activity and policy-laden activity. A group activity that is guided only by technical decisions in producing a product or rendering a service, such as training teachers, may be called an organization. It is expendable--i.e., it is set up to do a particular job--and in a sense has no life of its own. On the other hand, an activity which is infused with values of the society is not expendable but is responsive and adaptable, not only to the needs of its members and to their situations but to the broader needs of society. Such an activity may be classified as an institution. The term "institution" implies a concern with values. Just as in the case of an organization, the institution produces a product or renders a service but it is also heavily involved in the promotion and protection of values, and it depends upon a group of committed people to give it continued support and service.Within this framework an organization may become an institution through the process known as institutionalization. (At this point in the discussion it is appropriate to ask these questions:

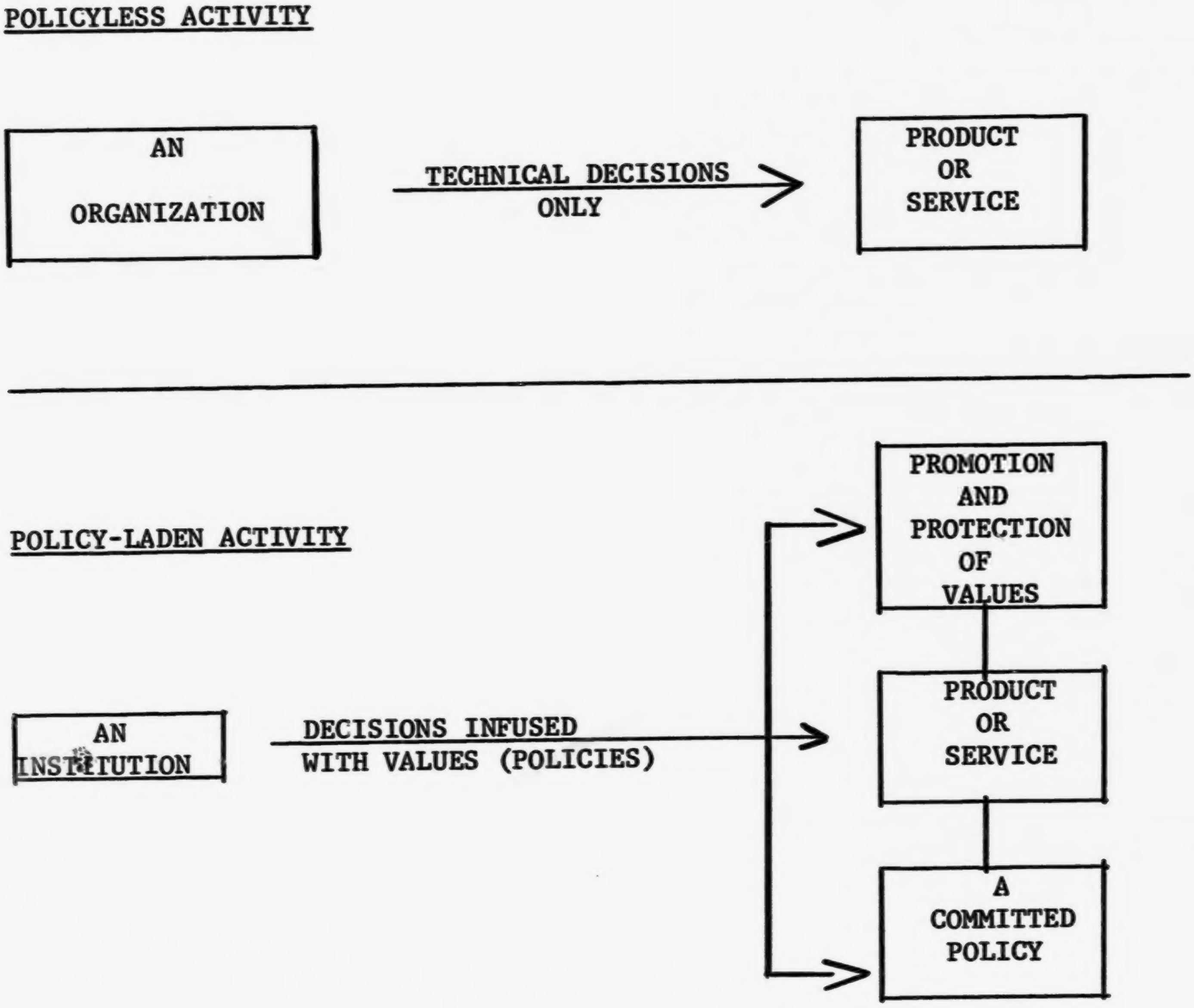
POLICYLESS ACTIVITY
AN ORGANIZATION
TECHNICAL DECISIONS ONLY
PRODUCT OR SERVICE
POLICY-LADEN ACTIVITY
AN INSTITUTION
DECISIONS INFUSED WITH VALUES (POLICIES)
PROMOTION AND PROTECTION OF VALUES
PRODUCT OR SERVICE
A COMMITTED POLICY

Fig. 1. POLICIES IN GENERAL

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[1] Phillip Selznick, Leadership in Administration (Evanston: Row, Peterson and Company, 1957) pp. 5-22.

In the matter of training teachers and others needed in occupational education programs, are the small colleges and universities organizations or institutions? The second question is: What do the policymakers of each institution want it to become?) In summary, a policyless teacher education institution produces personnel for miscellaneous consumers. The overriding interest of the latter institution is in the efficient production of its product with little or no interest in the long-range influence of the product upon the society. On the other hand, if the institution is an enduring participant in setting the values of the society through the production of occupational education personnel, it may be said to be engaged in policy-laden activity and may be classified as an institution. Once policymakers have decided to sponsor an institution for occupational education, there would then arise the matter of making the hard choices necessary to develop the policies needed for the operation of the institution.

To bring the policy question closer to the field of education, a scheme is needed whereby policies in education may be distinguished from other types of decisions. Such a scheme should also have implications for divisions of labor in educational decision-making. Such a scheme is given in Fig. 2. Three types of educational decisions are shown. First the goals of education, or in our case, the goals of the education of occupational education personnel, are determined. Decisions about the goals of education are big, general decisions, and such decisions are associated with the very nature of the society itself. These decisions are generally enduring.

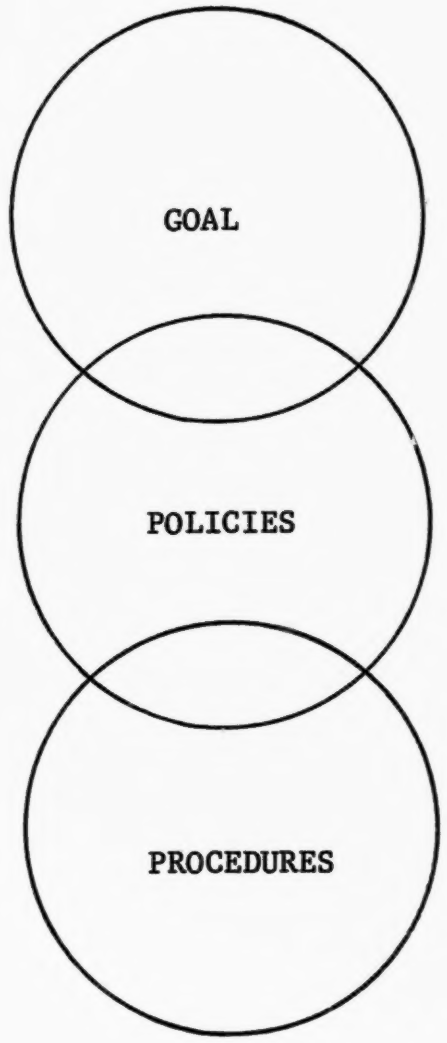

Fig. 2. POLICIES IN EDUCATION[2]

NOTES:
Goals relate to "big" decisions such as reasons for having education in a democratic society.

Policies are legislative and lay board decisions needed as guiding principles to develop programs.

Procedures are largely professional decisions in programming.

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[2] Adapted from remarks made by Dale K. Hayes, Chairman, Department of Educational Administration, Teachers College, University of Nebraska, Lincoln, Nebraska.

Secondly, policies for education are developed under the guidance of specified goals. Policies are needed as guiding principles for the development of educational programs. In our particular case, policies would be needed as guiding principles for the development of programs to train occupational education personnel. Policies are legislative and are also lay decisions which show how the institution will participate in the society through the training of occupational education personnel. As has been indicated earlier, at least two policy questions are: first, what will be the purpose of programs to train occupational education personnel; and, what will be the organization of programs to train occupational education personnel? Other types of policy questions will be given later in the paper.

Thirdly, decisions on educational procedures must be made. Procedures are largely professional decisions in educational programming which are made under the guidance of official educational policies. This category of decisions should give ample room for the exercise of professional education expertise, and it is in this sense that the scheme presented implies divisions of labor. Professional educators also have the responsibility for developing proposed policies and for recommending policies to be considered by the official policy-makers. Legislative and other representatives of the people are responsible for making policies. These groups are also responsible for influencing and specifying the goals of educational programs. Since professional educators advise lay policy-makers relative to policies, it follows that professional educators also influence goals of education. As is indicated in Fig. 2. there are gray areas in distinguishing among goals, policies and procedures. It is to be expected that, at some point, goals and policies merge and policies and procedures merge. It is suggested that goals, policies and procedures form a part of the basic subject matter and content of the training of professional educators. The distinctions made and the divisions of labor implied mirror the basic principles of the American system of education. It is essential that personnel in occupational education know of these distinctions and of these divisions of labor.

The training of professional occupational education personnel is shared by several institutions in each state. Generally, policies for each of these institutions are made by an independent board such as a board of trustees. A large part of the training of occupational education personnel is conducted under contract between particular institutions and the state board of education. Federal funds are utilized in such arrangements. It should be pointed out that there is no intention at the federal level to limit the training of occupational education personnel to such contractual arrangements. Thus, we may assume that the policy-making function in training occupational education personnel is the right and a responsibility of the official board of an institution. Guidance is needed in defining the policy-making function. In Fig. 3. is given a detailed statement of the nature of policies for the education of occupational education personnel.

It is contended that only citizens--in the case of public institutions--and authorized boards--in the case of private institutions--can

Basic Policy Questions

One of the ways of arriving at the nature of policy is to indicate the questions which can only be answered ultimately under our system by citizens or by authorized lay representatives. The basic questions seem to be these:

Method Question	1. How is policy for teacher education to be developed that will be enacted by the official policy-making body? Who will share in developing it? How will they share?
Content Questions	2. Who are to be served by teacher education? How? How much? When? Where? 3. What purposes will be served by teacher education? 4. How will the public decide whether the institutions are accomplishing their purposes? 5. How is teacher education to be organized and administered? 6. How is an adequate staff to be secured and retained? 7. What funds and facilities will be provided? How will they be provided? 8. What provisions will be made for research and development? 9. How are the programs and the procedures of teacher education to be planned? 10. How is the public to be kept informed? What will be the nature of the public relations program?

Fig. 3. POLICIES IN TEACHER EDUCATION[3]

answer the ten basic policy questions given in Fig. 3. The first question facing policy-makers is: How is policy to be developed that will be enacted by the policy-making body? Who will share in developing policies to be enacted? How will they share? In a consideration of the policy-making function, these are the methodological questions. In this frame of reference, questions No. 2 through No. 10 in Fig. 3. are questions of content. Further, Fig. 3. allows us to isolate the three points given in the title of this paper: purposes, policies and organization in teacher education. Question No. 3 in Fig. 3. deals with purposes; all questions in Fig. 3 deal with policies; and finally, question No. 5 gives emphasis to organization. Thus, as has been implied earlier, we are considering the broad area of policies for teacher education with particular emphasis upon two kinds of policies, purposes and organization.

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[3] Adapted from H.M. Hamlin, Public School Education in Agriculture: A Guide to Policy and Policy-making. (Danville, Ill. The Interstate Printers and Publishers, Inc., 1962), pp. 63-69.

In addition to the questions of purposes and organization, basic content-type questions in policy-making are: Who are to be served by teacher education programs and how will this clientele be served; how will teacher education be evaluated; how is an adequate staff to be secured and retained; what funds and facilities will be provided and how will these be provided; what provisions will be made for research and development; how are programs of teacher education and procedures of these programs be planned; and how is the public to be kept informed of and related to the teacher education program?

There is a strong tendency for the energies of policy-makers to be dissipated on procedural matters. There is also a strong tendency for professional educators to make policy decisions rather than to advise upon them and to help develop them. The division of labor suggested in the basic policy questions is critical to the success of teacher education programs. Without legitimate policies, teacher education departments run a heavy risk of becoming isolated on campus; they are likely to be poorly supported financially; and there will be faulty articulation of efforts involving the teacher education departments and other agencies such as local schools and state education departments.

Policy-Making In Small Institutions

To this point, we have attempted to identify some characteristics of small teacher education institutions which may be relevant in efforts to improving policy-making processes; we have tried to conceptualize the differences between policyless and policy-laden activities, the latter type of activities being associated closely with values in the society; we have attempted to describe a division of labor in decision-making in teacher education, including the professional educator's responsibilities in the development of policies as well as his responsibilities in policy implementation; and we have suggested that there are basic policy decisions to be made in teacher education, two of these being purposes to be served in teacher education and the organization of teacher education.

Policies give a value-system link between teacher education institutions and the society. This implies systematic relationships between agencies on campus and systematic relationships with other agencies in the society. Internal and external relationships in teacher education are illustrated in Fig. 4. The vertical dimension in Fig. 4 represents levels of relationships between agencies: relationships on campus and with other institutions, relationships with agencies at the state level and relationships with federal and local agencies. Relationships between groups of policy-makers, administrators and program specialists are also indicated. Otherwise, Fig. 4 illustrates relationships in the policy-making process and conceptualizes a functional linkage between policies and organization.

In the following remarks on the improving of policy-making in teacher education, no attempt will be made to suggest specific "content" policies for enactment by policy-makers. However, suggestions will be made on how policies should be developed and enacted. In addition, an attempt will be made to raise questions about policy-making relationships among teacher education and other specialties on campus, and between institutions and other agencies.

A scheme for policy-making is shown in the left side of Fig. 4. The college system, or the on-campus system, is given as the center of policy-making. This implies that the main structure for policy-making embraces the entire institution and that teacher education in only one of several institutional functions. Much interplay between departments on campus and between program specialties within vocational and technical education is essential for effective policy development. In addition to these internal relationships, the scheme emphasizes relationships with other institutions and with other agencies at the state, federal and local levels.

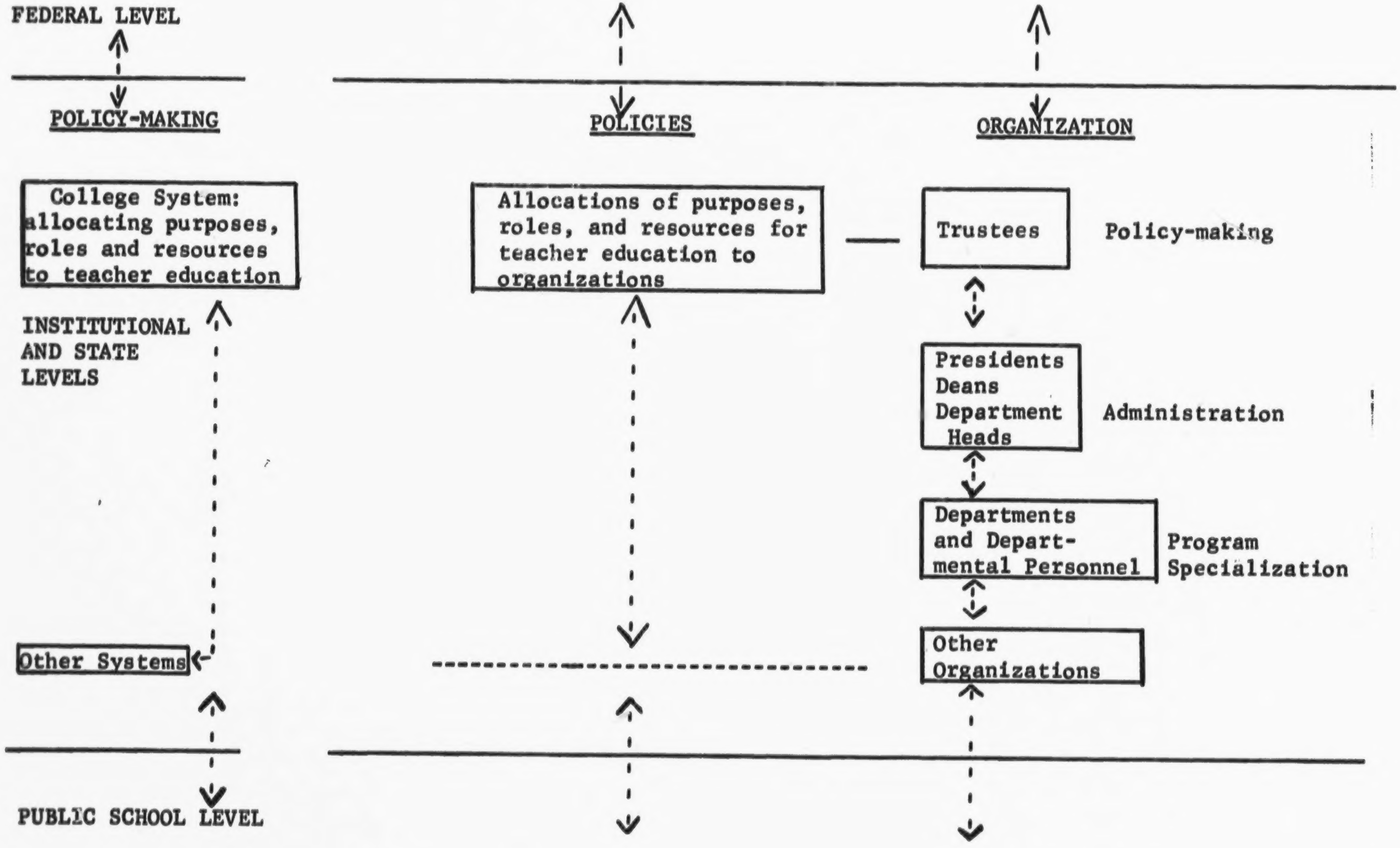
FEDERAL LEVEL
POLICY-MAKING
POLICIES
ORGANIZATION
College System: allocating purposes, roles and resources to teacher education
INSTITUTIONAL AND STATE LEVELS
Other Systems
Allocations of purposes, roles, and resources for teacher education to organizations
Trustees
Policy-making
Presidents Deans Department Heads
Administration
Departments and Departmental Personnel
Program Specialization
Other Organizations
PUBLIC SCHOOL LEVEL

FIG. 4. SYSTEMIC RELATIONSHIPS IN TEACHER EDUCATION

On the question of strengthening internal relationships in policy-making, we may illustrate some needs by using two of the nine basic questions, namely, purposes, and organization of teacher education. In using the term purposes we mean: why provide vocational and technical teacher education? What do we purpose to do in a small institution, provide pre-service education only? If so, what values will guide such training? Will we provide in-service education: consultative services; and research and development services to schools; curricula and materials development for schools? By organization we mean: what positions will be established for policy-making, administration and program specialization? What heirarchical relationships between these groups and between positions shall obtain? What will be the channels of communication? How is specialization in a small institution to be defined? What coordination, if any, will be provided? What linkages, if any, will be established with other institutions and agencies?

Policies on organization, as suggested on the right side of Fig. 4 should provide channels of communication among policy-makers, administrators and program specialists which are efficient, effective and enduring. A result of good communication should be a reasonable consensus among these groups on institutional purposes to be served. (It should be pointed out, however, that the communication structure itself only facilitates policy-making. The basic ingredients of good policy-making communications, such as diligent study, research and development, and innovativeness, cannot be replaced by what is shown on an organizational chart.) Thus, the purposes of teacher education should be arrived at through institution-wide communication which is made possibly by effective organization.

Some sample questions on the development and enactment of policies for purposes and organization of vocational and technical teacher education will now be considered. It should be remembered that we are including below only two of the nine basic "content" questions in policy-making purposes and organization:

(1) Has there been a meeting of minds by policy-makers, administrators, and program specialists on what should be the purposes and organization of vocational and technical teacher education in a small institution? Is this matter ever discussed?

(2) Are policy-makers adequately informed about vocational and technical teacher education on campus?

(3) Have the purposes and organization of vocational and technical teacher education been analyzed in relation to other institutional purposes? Is there duplication in purposes? Is the uniqueness of vocational and technical teacher education reflected in its purposes and organization?

(4) Do administrators and program specialists assist in the development of policies on purpose and organization and recommend policies for enactment? or, Do they actually make these policies?

(5) Do good policy development relationships exist between administrators and program specialists? Between departments? Between the specialists in the several vocational and technical education fields?

(6) Are we taking advantage of our "smallness" by establishing an effective communications network?

Concerning external relationships in developing and enacting policies on purposes and organization, it seems that a small institution is heavily dependent upon linkages, cooperative and otherwise, with other institutions and agencies. Apart from smallness, it appears that isolationism is destructive in teacher education. For, in an economic sense, a teacher education institution converts inputs (human and other resources) from suppliers, into outputs (teachers, etc.) which are inputs for other institutions and agencies. Thus, linkages are critically important if a small college is to acquire necessary resources and if it is to fill an institutional rather than simply an organizational role in society.

Several sample questions are given below on external relationships of an institution engaged in vocational and technical teacher education. (Again, only questions relating to developing and enacting policies on purposes and organization are included.)

(1) Considering the supply-demand situation for professional education personnel, what occupations are in short supply and what occupations are emerging in vocational and technical education? What agencies should we work with in getting an answer to these questions?

(2) Under limited resources, what occupations will be given priority?

(3) Do we need to develop cooperative training programs with other institutions in order to overcome limitations on resources? If so, what policies are needed to do this?

(4) How shall we work with local schools?

(5) How shall we work with state departments of education and with state teacher certification bureaus? With teacher associations?

(6) What organizational structures are required to work with federal agencies?

(7) What organizational structures are needed in teacher placement services? In follow-up services to teachers?

Concluding Statement

Policy development and enactment are important and complicated. At least two steps should be taken: we should resolve to have adequate policies; and, as a means of getting better policies, we should resolve to do a better job in policy development. If we are successful, policy enactment will largely take care of itself. One fatal and common error is to by-pass official policy-makers. Small institutions are not necessarily limited by their smallness in the matter of excellence in policy-making.

RESEARCH DEVELOPMENT GRANTS AND SMALL PROJECTS RESEARCH

John Morrow
Director of Educational Research
U. S. Office of Education, Region III
Charlottesville, Virginia

Ladies and Gentlemen, may I express my appreciation to Dr. Bell, your Institute Director, and to others who have made this meeting possible. I consider my being with you a distinct pleasure.

In my lifetime, I have experienced many "baptisms of fire." May I say this meeting will serve as my baptism of fire in explaining the Office of Education's research program to people within Region III. I sincerely hope that both of us, you and I, will come out of this experience with a better understanding of educational research and related matters of mutual interest.

Before I get into my presentation, I would like to pass on to you best wishes for a fruitful meeting from Dr. Carl Seifert, Regional Assistant Commissioner of Education; Dr. Louis Bright, Associate Commissioner for Research, U. S. Office of Education; and Dr. Howe.

Speaking of the Commissioner, I hoped that I could have used the opening remarks he used recently, when he addressed the National Student Association group at their national meeting. The Commissioner began by saying, and I quote: "I want you all to sit up and listen to what I'm going to say. I know you aren't accustomed to lectures; but I have something important that I want you to hear. If you don't pay attention, I'll take your CIA card away from you." End quote.

Ladies and Gentlemen, without further ado I would like to get to the business at hand: explaining the regional research program sponsored by the Bureau of Research, U. S. Office of Education. In my presentation I will discuss several areas related to educational research:

(1) Major research activities supported by the Bureau of Research

(2) Examples of on-going research programs

(3) Secretary Gardner's and Commissioner Howe's reasoning behind decentralization

(4) The regional office complex

(5) Two programs already decentralized:

  (a) Small projects

  (b) Research development grants

(6) Six areas of importance associated with research proposals

(7) Finally, questions previously raised by Dr. Bell in his correspondence.

The major activities supported by the Bureau of Research include research in general, and more specifically, basic research, applied research and demonstrations. There is no limitation on the size, the area of study, or the kind of activity eligible for project support, so long as the projects deal with educational research, development, or dissemination of the findings. However, the public interest and the critical needs of education demand careful administration of available funds. There are many descriptions of what constitutes careful administration; in any event, regardless of the definition used, the Office of

Education will make suggestions concerning the type of educational research needed. We will do this only in order to avoid unnecessary duplication. We might ask the investigators to redesign their proposals in order to make their findings useful in settings other than their immediate environment. Research projects may explore educational needs or seek to resolve issues. Others may develop materials or methods or test them in control situations or field studies. Still others may investigate the potential of promising programs or practices to bring about desirable educational change. Research projects may also analyze, consolidate, or synthesize information from research, or from practice. Certain projects may demonstrate or disseminate educational information or techniques.

Some of the educational research proposals being submitted seek to advance knowledge or to solve theoretical problems in the behavioral sciences. Others may involve applied research or curriculum development in specific content areas. Still others may produce materials for educational technology, or demonstrate their uses.

The next major research activity supported by the Bureau is the Educational Laboratories. Educational Laboratories stress development, dissemination, and implementation. Each laboratory is primarily concerned with educational improvement in a particular region, especially with wider adoption of beneficial educational innovations in that region. To this end, the laboratory designs its own program and continuously adjusts it to meet the emerging needs of the region.

A third major research activity is conducted by the Research and Development Centers which concentrate on a single problem area of education and conduct activities ranging from basic research through dissemination. Centers are usually established at universities or other institutions where the staffs have already demonstrated exceptional competency in the particular problem area. Each Center is in interdisciplinary and ordinarily maintains cooperative relationships with regional laboratories, state departments of education, local school systems, universities, teacher training colleges, and relevant professional and non-profit organizations.

The R & D Centers emphasize research and development; while the laboratories stress development, dissemination, and implementation.

A fourth major activity is ERIC, an acronym for Educational Research Information Center. ERIC was designed to serve American education by making available reliable, current educational research data and research related materials. This system is made up of a network of information clearinghouses or documentation centers located throughout the country and coordinated through the central ERIC office in Washington.

A fifth major activity is the training of personnel. This is a program designed to provide for sound educational research and development in the future. Financial support is available for institutions to train researchers, and to develop and improve their own programs for such training at undergraduate, graduate and postdoctoral levels.

Another example of support related to training of personnel is the program whereby the Bureau supports the state Research Coordinating Units in Vocational Education. These units coordinate local research and demonstrate efforts in vocational education. They also provide consultative assistance to individuals for the preparation of research proposals.

The sixth activity, evaluation, is supported by the Bureau in relation to each of the types of programs previously described.

I would like to comment briefly on the most recent activity supported by the Bureau: The Regional Research Program. The Bureau is starting to decentralize certain programs to the regions. More and more of the research programs will eventually be administered from the regional offices.

Many comments have been made by professional groups concerning the decentralization effort now underway by the Office of Education. In making their decision to decentralize the activities of the Office of Education, the Secretary of HEW, the Department of Health, Education, and Welfare, and Commissioner Howe, have constantly stressed the fact that through the regional offices we can obtain far better coordination in the local community and with other government departments who are also operating in these communities. Such coordination is high on the White House list of priorities. This, then, is the basic philosophy behind decentralization. Decentralization gives the regional offices a responsibility and authority to deal directly with the substantive aspects of educational programs. Many of the decisions that are now made in Washington can be and will be made in the field.

Let me further illustrate this reasoning as it applies to our region. As of right now, all program review, evaluation, contract negotiation, certification of funding, etc., associated with educational research are performed in Washington, by the Bureau of Research. This means that any research proposal submitted within the region has to be handled via long-distance; it has to follow cumbersome deatiled and at times unclear instructions; and then the institution and the investigator have to wait an undue amount of time before he even receives a notification that his proposal was received. The average period of time required in the past to process educational research programs was upwards of 4 to 6 months. Beginning now, all responsibility and authority for the small project research program will be vested in the regional offices. Procedures are now being designed with the hope that we can condense the 4-to-6 month time frame to a more realistic 45 to 60 days.

The major intent to decentralize is based on a well-known truism: it is easy to communicate, to get common understanding, and to accomplish important matters of mutual interest, if we communicate in an environment where there are confidence and trust. You cannot get common understanding and achieve common objectives via long-distance telephone and the inanimate approach.

All the people associated with the Office of Education, not only the research divisions, have been instilled with the philosophy that we are located at the regional offices so that we can be closer to our clientele; so that we can listen to your problems with the hope that we can offer practical suggestions to help you achieve the innovations and improvements that you are seeking.

Certainly this is my philosophy and I will strive to keep it in the foreground as I continue to work with you and your associates, not only with the two programs shown here, but with other research programs which may be decentralized to Region III in the future.

A detailed description of the Bureau of Research activity is available in a brochure, "The Office of Education Support for Research and Related Activities," published by the U. S. Government Printing Office. This brochure will give you a more complete explanation of the research programs supported by the Bureau. In addition, it provides a complete listing of the Educational Laboratories, the R and D Centers and the ERIC Clearinghouses.

Before I leave decentralization as it applies to Region III, I feel I should define the territory within the region. Region III encompasses Maryland, the District of Columbia, Virginia, West Virginia, North Carolina, Kentucky, Puerto Rico, and the Virgin Islands. Each time I mention the latter two pieces of geography, my wife, my children, my friends, and my associates always come up with the same remark, "You're kidding."

My retort to their comment is,"I shall endeavor not to postpone my trips to Puerto Rico and the Virgin Islands until the middle of the winter."

So much for research in general, and the philosophy behind decentralization. I would now like to give you some of the specifics of the two research programs already decentralized.

The first one is the Small Project Research Program, which has several characteristics associated with it. One is the fact that the investment available to the investigator of a worthy project is $10,000 or less. If the research proposal is approved, the project must be completed, and the findings disseminated within an 18-month period.

The main purpose behind the Small Project Research Program is to encourage the smaller colleges to undertake research programs so that their personnel may gain experience in educational research and related activities.

This research program was designed to support significant small-scale projects proposed by doctoral and postdoctoral students and fellows particularly those who are in developing institutions. Small research grants are not limited to doctoral or postdoctoral students or fellows. Faculty members from small, medium, and large institutions are eligible to submit proposals. The state departments of education, state school systems, as well as non-profit organizations are also included within this category.

If one were to take a look at the national statistics concerned with teacher training, he would readily see that most of the teachers of today and tomorrow are graduating with little or no research capability. If this is so, then the majority of our teachers have been studying and teaching in a sterile vacuum as far as educational research is concerned.

The intent behind the small research project is to create an awareness as to the value of educational research, to give interested parties some valuable experience with the hope that as they continue to be engaged in small project research, they will become more skilled and more sophisticated. In the future our hope is that our teachers will be capable of doing sound educational research and make valuable contributions to the many areas of education, which are crying for innovation, change, and improvement.

Some of the appropriate criteria associated with small projects are:

(1) The design must be a research design or research-related

(2) The area under investigation should hold some promise of improving education

(3) The findings should be applicable to an environment beyond that of a single institution, a community, a school district, etc., and

(4) The investigator has to clearly determine how the results will be widely disseminated to professional groups who might be in need of this information.

The second type of program, already decentralized to the regional offices, is the Research Development Grants. Primary target groups for research development grants are the smaller colleges and the developing institutions. The purposes behind the Research Development Grants Program are:

(1) To expand their research capability, their knowledge of research methodology, and the value of research to developing institutions.

(2) To assist with the development of research capabilities on the part of college presidents, deans, department heads, fiscal staffs, and certainly the academic faculties.

(3) To improve curricula for teacher training.

(4) To strengthen institutional programs.

There are two types of grants in this category, the consortium, and grants to individual institutions. The consortium program requires two or more small colleges or developing institutions to align themselves with a larger institution to investigate areas of common interest to the institutions involved. This type of research development grant is being given more attention and a higher priority than an individual institutional grant. Within Region III we have two such consortium programs underway. The first one is a group of small Catholic junior colleges who are taking a look at themselves to determine how they can keep pace with the changing needs of their student bodies, and their communities. These schools want to grow, and to become efficient, accredited-four-year institutions. The project coordinator for this consortium is Marymount College of Arlington, Virginia.

The second consortium underway within our region is a group of small Negro colleges in North Carolina. Project responsibility for this group is vested in North Carolina College at Durham. These Negro institutions are doing inter and intra-institutional research with the hope that they will have some answers to the problems associated with expansion of their capabilities. Each college is interested in offering more effective courses for teacher training not only at the Bachelor's degree level but also at the Master's degree level.

Those who read and evaluate proposals are concerned with many factors which contribute to a sound proposal. I have taken the liberty of suggesting a few guidelines for your consideration and use. We are suggesting: (1) that each research proposal should have a theoretical base upon which to build. The proposal should be related to existing research. This means that the literature should be searched by the investigator. The investigator should let the reviewing group in one his secrets as to what additional research this project might lead to. (2) That the findings should have as wide an application as possible. If the proposal is tailored for the sole value of a small group, it will receive attention and a lower priority than the proposal with findings which have wide application. (3) That the investigator, the institution, and those concerned should clearly determine the relevance of the procedures or the research design to the problem being studied. We probably turn down more small project and consortium proposals for this one deficiency than for any other reason. Investigators should have their proposals checked and critiqued by knowledgeable researchers, who can check the relevance of procedures used to the problem being studied. This should be done in the draft stage, before the proposals are officially submitted. (4) That the project be based upon realistic schedules, and budgets.

In our region, for example, we recently received 30 new proposals. Quite a few were from faculty members and doctoral students who submitted schedules similar to this:

(1) Proposal to be presented in March or April.

(2) The study to begin in June.

(3) The study to be completed in September.

I know of no individual or a group of people who can set up procedures to provide consultation for drafting sound proposals; provide expert review and evaluation; take care of contract negotiations; accomplish the research; and disseminate the findings within such an unrealistic time frame.

Gentlemen, we are urging more sound pre-planning, and more realistic time schedules to accomplish what needs to be done.

PLANNING AND STRATEGIES FOR DEVELOPING MORE EFFECTIVE TEACHER EDUCATION PROGRAMS

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For the purpose of this brief discussion on innovations and changes in vocational teacher education, it seems appropriate to use specific examples from the State I know best, the State of New Jersey.

Prior to 1963, the New Jersey vocational teacher education program was directed by the Division of Vocational Education in the State Department of Education. The director of vocational teacher training handled all of the supervised teaching. The in-service supervised teaching was offered only after five years of certification courses had been completed. A supervisor of vocational teacher training was employed in 1960. His duties were to serve as an itinerant teacher trainer for new teachers and to teach two or three courses each semester.

In July of 1963 a department of vocational-technical education was formed at Rutgers, The State University. The implementation of the statewide program of trade and industrial education was vested in this new department and the director of vocational teacher training assumed a dual role of implementing programs as a staff member of the new Department and as a State Department staff member in charge of vocational certification.

The time required to complete the certification requirements has been cut in half and over 350 trade and industrial teachers have been serviced annually by this Department. An equal number from the other services combined have been served. Certification courses have been added to the summer session. These courses have been very well attended.

However, with the rapid increase in vocational education brought about in part by the passage of the Vocational Education Act of 1963 and a change in leadership in the division of vocational education, there was a great need to expand the vocational teacher training capability beyond that provided by Rutgers; it was hoped that we could provide such capability in the State Teachers' Colleges as well.

Prior to the 1963 Act, the course requirements for vocational certification were completely inflexible. A change in rules at this time and more flexibility in interpreting those rules have given a large degree of flexibility. Most of the certification courses for vocational certification are now available at the graduate level and fit into the Master's degree program. These courses which have greatly increased the incentive for technical and related teachers to go on for advanced degrees, are offered in addition to a complete undergraduate certification and degree program. There has been a great increase in the number of skill subject teachers who are continuing their education program through to the baccalaureate degree. More than a third of those under the certification program are continuing on to earn a degree.

The pre-service vocational teacher training program has been greatly expanded and refined. Now the pre-service program has become a very important source of new vocational teachers. Prior to this year, Manpower Development and Training Act instructors were required to go through the pre-servicing screening. In the future, full-time MDTA instructors will be treated as in-service vocational teachers. There has been a tendency for nearly all MDTA instructors to enroll in the vocational teacher training program.

Recent Developments in Vocational Teacher Education

The first meeting of the New Jersey State Steering Committee was held on January 13, 1966 at the Kearny Plant of the Western Electric Company. The purpose of this committee was to explore the vocational teacher education needs for the future in the Garden State.

Assistant Commissioners Dr. Earl E. Mosier and Dr. Robert M. Worthington were co-chairmen. The roster of participants included deans and presidents of all state colleges and private universities and colleges.

There was much active participation in the group concerning the total program concept of vocational education. As a result of this orientation meeting, the colleges and universities asked the state director of vocational education to appoint a representative committee to serve as a vocational teacher education steering committee. Subsequently, the committee was appointed consisting of the presidents of the six state colleges, the deans of the school of education of Fairleigh-Dickinson University, Seton Hall University, Rutgers University, and the president of Rider College. This high-level group has met with the state director of vocational education on five occasions to discuss ways and means of expanding this badly needed program.

As a result of suggestions from the committee members, new programs in vocational-technical education were developed and were presented to the State Board of Education:

1. Provision was made for the extension of vocational industrial teacher education programs to four of the state colleges--Jersey City State College, Montclair State College, Trenton State College and Glassboro State College. (This resolution was approved and the vocational teacher training programs will be instituted in each of the colleges starting in the Fall of 1967.)

2. Distributive education teacher education programs were authorized and funded for Glassboro State College and Trenton State College to more adequately serve the rapidly expanding programs in the South Jersey area.

The addition of these programs brings the total number of distributive education teacher education programs in New Jersey to four undergraduate and graduate programs and one graduate program at Rutgers. The state of New Jersey now stands first in the country in the number of distributive education programs available.

The introduction of trade and industrial teacher education into the state colleges represents a big step in the direction of providing better and more services for the large number of beginning teachers in the vocational-technical field. Rutgers will continue to serve central New Jersey on the undergraduate level and continue to offer graduate programs at the Master's and Doctoral degree level. By developing a localization of effort in the teacher training services, needs in this area would be served on a state-wide basis.

The first state leadership Institute for Distributive Education Coordinators was held at Trenton State College in June, 1967. This was the first institute of this nature held on the East coast.

New Jersey hosted a National Conference for Distributive Education Coordinators in the "Project Method" at Rutgers University during the month of June, 1967.

A pilot program in public information in business and distributive education at Rider College has been so successful that additional support is being given to this program during the coming year.

In the field of business education five data processing institutes are being held in five locations in order to provide up-to-date instruction for 150 teachers in this rapidly expanding new field. These programs are being offered by Rider, Rutgers, Trenton State College and Montclair State College. This is a three-credit course and hands-on experience will be provided using the latest equipment.

An Electronic Steno Project has been conducted in three centers involving 180 stenography instructors.

A unique new Center for Occupational Education has been established at Jersey City State College. The Western Electric Corporation has loaned, for a period of one year, a top executive to direct the establishment of this Center. The purpose of the Center for Occupational Education is to develop a new concept of training of teachers and leadership personnel for all levels of vocational education. This Center will provide vocational education for high school students from the surrounding area on a service basis. It will provide technician training programs at the post-high school technical institute and associate degree level. It will provide a four-year baccalaureate degree and a masters degree program in occupational education.

A recent issue of the Western Electric Company's house organ, WE, June, 1967 describes in detail the Company's participation in this new Center. The Center for Occupational Education is funded with State Vocational Education funds and Federal funds under section 4a of the Vocational Education Act of 1963. The Center has been in operation for a little less than one year and now has a staff of 25 with a budget of more than $300,000. The staff is now analyzing needs, developing curricula in several areas including computer science, para-medical occupations, electro-mechanical technology, fluid power technology and other specialized technical areas. An extensive cooperative program is being developed to take advantage of the high percentage of industry in the area.

In agricultural education two new teacher education programs have been approved in agricultural business and environmental science; these programs are in addition to the program in ornamental horticulture initiated last year. A summer workshop is being conducted to investigate additional use of cooperative education in the agricultural area.

Future Needs in Vocational Teacher Education

Of primary concern for the immediate future is the provision for adequate staffing in the teacher education institutions to insure the availability of supervised teaching activity during the first year for all teachers holding emergency certificates.

There is need to develop new certification rules for those instructors currently teaching in the occupational fields under the pilot programs. Initial conferences have been held but no conclusions have been arrived at. The crucial problem appears to be one of how much occupational experience should be required.

IDENTIFYING AND UTILIZING HUMAN AND INSTITUTIONAL RESOURCES FOR THE DEVELOPMENT OF TEACHER EDUCATION PROGRAMS

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The lack of a sufficient number of adequately trained teachers is a recurring crisis. In the history of education in the United States, again and again, the problems of teacher supply and of teachers sufficiently well trained to be effective have had to be faced. Doubtless, when the current teacher crisis has passed we shall in due time face this same problem again. While it is an old problem, it has new dimensions characterized by a complexity heretofore unknown.

At the beginning of this century, the time of the normal school and teachers college movement, we lacked enough trained teachers to staff the increasing number of public schools with their rising enrollments. But, the normal schools and teachers colleges did not meet the immediate need. Summer normals were conducted to upgrade the teachers already in service while pre-service programs were getting into production. The first Smith-Hughes and Smith-Lever teachers were in-service trained. New certification requirements caused teachers to take extension courses, and tired though they may have been from a school term of teaching, they spent hot, uncomfortable summers earning a few credits toward degrees and certificates that gave them security and optimum salaries in grade. Many years passed before the supply of pre-service trained teachers could fill the demand for elementary and secondary teachers.

Our educational problem involves many things: (1) Pre-School, nursery school, or whatever name you may give to that education of children earlier than has been our society's custom: (2) Updating and giving contemporary relevance to our traditional academic structure at all levels; (3) Providing education appropriate to the needs of the handicapped; (4) Developing an educational program acceptable and useful to the young who leave school too soon, the drop-outs; (5) Continuing education and retraining of adults whose knowledge and skills have been made obsolete by technological and social changes.

Our educational system would be in chaos, which is sometimes dangerously approached, if there were not those seeking the creative alternative in the crisis to balance the frustrated, the distraught, the despairing, and those who feel impelled to destroy the old before they have a vision of the new, much less a design for building it.

Dr. Bernice Milburn Moore of the Hogg Foundation for Mental Health at the University of Texas has stated our predicament in a recent speech:

> Dissonance and conflict about the past, rejection and discarding of what has gone before, are always a part of the present, no matter the century, the era, or the time in history. Whenever social change becomes rapid in pace and radical in innovation, repercussions are heard. Disruption which accompanies change, displacements which are generated by it, and disorganization which is created in its wake inevitably bring the cry of "the decadence of the younger generation" and the mess made by the elders. Parents become frightened. Oldsters are angered. Youth rebel in dress or behavior or both. Popularizers and pseudo-scientists make dire predictions. Mass media project disaster and attempt to discover signs of regression and deterioration of mankind.
>
> Change and movement also are accompanied by the antithesis of disarray. Underlying these are the harmony of cooperation, learning, and conserving, often unheard in the clamor over the

> startling and the different. Innovative approaches to problems are research. Designed intervention into needs of persons in social planning. Inventions applying scientific findings to production are advances in technology. Scientists, social actionists, and engineers, as a whole, do not shout their doubts of the past or their defiance of the present. They continue their movement from the old to the new, from the tried to the experimental, from the traditional to the modern. Quiet acceptance of the fact that the static is unhealthy permeates their behavior and their work. They sense that alternation and mutation are the normal, that much that is untried needs trial, and that, at the same time, the residue from the old is always basic to transformation to the innovative. Thus, chaos is avoided even if change may be radical.

Our major problem, even for those who are committed to the creative alternative in "Identifying and Utilizing Human and Institutional Resources for the Development of Teacher Education Programs," is resistance to change, any change, to say nothing of radical or drastic change. It is observed by many who have critically appraised the programs included in the war on poverty that loss of that war is threatened by the bitter defense of their roles and prerogatives on the part of vested interests. This is understandable as simple struggle for survival but it need not be, because innovation and adjustment give greater insurance for survival than defensive rigidity. As a matter of fact, rather than insuring survival, inflexibility more often insures destruction by those whose hopes have been raised only to see them dashed by a defensive establishment.

Many of us in the educational establishment consider ourselves as seeking what is best for those waiting to be taught. In this view ours is a welfare operation in an educational context.

At best, welfare programs are palliatives. Their simple goal is to store-up a system weakened by too many people sinking too far below the floor of security and comfort. The more threatening this weakness becomes the more apprehensive are those who enjoy the major economic and political benefits from the established order. A measure of this apprehension is the increase in the emphasis on welfare provisions for the disadvantaged who may be nearing the limits of their endurance and who are beginning to raise questions about "The System" as a system. I need not call your attention to the many challenges to our educational system. Each of you can readily make your own list.

For the sake of argument, let us contemplate for a moment a proposition that is surely reprehensible to the educational establishment: Formal educational structures, schools of whatever kind, are social mechanisms and teachers are social instruments. It is as true of social as it is of physical mechanisms and instruments fashioned for specific use in an appropriate circumstance that they become obsolete when the circumstance changes. We and much of the establishment to which we belong are now obsolete.

The reasons for outmoded education and meaningless classroom exercises lie in the anachronistic characteristics of teachers.

What can we do about obsolescence in the teaching training apparatus?

First, we can take a good hard look at our teacher education programs and answer for ourselves the following questions:

1. What are we really doing in our courses for the preparation of teachers in vocational and technical education?

2. What do the people and institutions we service say we are doing?
3. What would the people and institutions we service like for us to do?
4. What do our professional critics say we are doing in our teacher education programs?
5. Why do we continue doing the things we are doing and have been doing?
6. How can we go about making many changes most efficiently and economically?

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What are we really doing in our
courses for the preparation of
teachers in vocational and
technical education?

We might attempt a study of the catalog course listings and seriously read their descriptions. For how many years have these course listings been in our catalog? When were their descriptions revised? The dean of a school providing vocational teacher education said to me four years ago "What we are teaching is outmoded; it really isn't as good as what I was taught 25 years ago." A high school vocational teacher told me, "I don't recommend my pupils to go to my Alma Mater because the equipment and instruction given there now is not as good as my students get."

A first resource we need to make use of is our good sense expressed in self-criticism. We must clear away the deadwood if there is to be room for fresh new growth. Admittedly, pruning may be very painful. Once we have looked at our course offerings and concluded that dear Professor "X" has taught these courses too long, we must resolutely eliminate the courses and Professor "X" along with them.

Another observation may show that, in some areas, we do not have the equipment to train teachers as they should be trained; we may decide not to waste the students' time or budget monies on courses we are not equipped to give.

Using such wisdom as we have, we can come to recognize what we are teaching well, what we are teaching poorly, what we need to teach and what our needs are.

What do the people and institutions we service say we are doing?

How many teacher education institutions inquire into the professional experiences of their graduates, and later maintain appropriate records?

A second resource we can use is to evaluate the adequacy of the education we give. This involves finding out where our graduates are employed and what they are doing.

Reports about the unusually successful graduate in the alumni magazines are not enough. Surveys that ask graduates to report on the adequacy or inadequacy of their training are helpful.

Surveys of employers of graduates which seek out the strengths and weaknesses of graduates' training should be made.

What would the people and institutions we service like for us to do?

What requests do we receive for teachers which stipulate certain qualifications in the teacher? How many of these requests can we fill and how many are we unable to fill? How many of our graduates are we able to place in jobs for which they were trained? What inquires do we get asking us if we offer certain subjects? Do we become concerned about falling enrollments in our courses? A need exists to sharpen our consciousness of the job market so that we know exactly what can be sold and what cannot.

What do our professional critics say we are doing in our teacher education programs?

The critics of teacher education are many; some are positively rude in casting their aspersions on teachers. None is more caustic than Lawrence J. Peter who has posited "The Peter Principle" in a recent issue of the Phi Delta Kappan. The principle as stated is:

> In a hierarchy, each employee tends to rise to his level of incompetence: Every post tends to be occupied by an employee incompetent to execute his duties.

The many attacks on education courses have resulted in some institutions breaking up teacher education departments and distributing the offerings to subject matter fields. The increasing acceptance of teaching fads: the use of programmed instruction, audiovisual aids, "gimmicks," and devices to improve instruction without improving the teacher, has brought a reaction in the form of a suspicion that educational hardware camouflages the inadequacy of educational hardware.

Why do we continue doing the things we are doing and have been doing?

The first reason we continue to "do the things we are doing" is that attitudes against change grow more resistant throughout the educational hierarchy from the funding agency downward. We do what philanthropy and legislatures will appropriate money for. One institution I know about has about as many teachers as students in a School of Agriculture because the legislature believes Negroes should be taught agriculture and will appropriate funds for "agriculture" long after students seek instruction in it. In another institution, funds for a business education course were introducted into the curriculum only by "hiding" its expenditures in the School of Agriculture budget. Other institutions can't bring themselves to consider Schools of Agriculture or Schools of Trade as being obsolete.

A second reason that change is resisted is the teacher certification requirements of state departments of education. It appears that the courses appropriate for certification were decided upon years ago and have become immutable.

A third reason is that the policies of professional teacher organizations are far less concerned about teacher competence than about working conditions and fringe benefits.

The fourth reason is that college administrations and faculties, those entrenched in prestige and influence, often encourage no innovations or changes in which they see threats to their roles and status.

A fifth reason is that there are creatures of habit in the several components of the educational establishment who have a certain blindness and deafness. They refuse either to listen to or look at the different or the new. They feel that innovations are not within their purview.

How can we go about making changes most efficiently and economically?

The consideration of changes in teacher education can be divided realistically into pre-service and in-service programs.

The pre-service program must be considered in long-range terms with an emphasis on flexibility and as being "educational" rather than as "training." Old formulas for the training of teachers which have been characteristic of "Education," and "Pedagogy" courses must be discarded. The planning of new teacher education programs should include economists, social scientists, social planners, and representatives of the educational and the industrial establishments. A meaningful teacher education program must be constructed on economic and social projections into the future rather than on immediate short-term adjustments to current circumstances.

It is not too difficult to determine the present gap between teacher education and opportunity even though the next decade, for all practical purposes, is upon us.

There are those in government agencies and in industry and private business who are making blueprints of long-range projections. They are envisioning the future, making policy decisions now that practically insure that developments take the course of these projections. At great cost, in both public and private affairs strenuous inquiry is being conducted into long-respected scientific "laws" and "principles". Later, the inquiry is followed by an application of new theories to devices and instruments that become technological inventions. These inventions which are still on the drawing board or in the form of test models today will be in production within the next eight years; or that period before the graduation from college of this year's high school freshmen.

Those responsible for the development of technical and vocational education programs should secure what has been learned, however tentatively, for the instruction of high school and college students. True enough, teachers may lecture with assurance on the piston engine and on the animal-powered vehicle, but why should they except as a matter of historical interest? It is past time that we stop educating for the past and for the passing. We can educate for the coming if we take recourse to the knowledge being accumulated by those who are putting together what is coming.

We should give attention to scientific and technological breakthroughs in curriculum development and in the reorientation of students' thinking so as to make them receptive to emerging ideas and things.

The movement of events is too swift for us to enjoy the luxury of taking our time or watching things work out. Too much can be lost, wasted or destroyed if we do. Anticipation and designed intervention are essential for utilization and comfortable adaption. On the basis of what we know we can anticipate the coming needs of technical and vocational education and deliberately move to provide these needs.

Without fear or apprehension or resentment let us identify the sternest critics of our teacher education programs and invite them to make future criticisms with specifications. With them, let us examine these criticisms in a spirit of humble hope for intelligent guidance.

Let us make searching inquiry into current educational experiments and assess these on the basis of their encouragement of ingenuity and of creativity in the teaching role. There may be experiments in teacher education that violate our ingrained fundamental beliefs, but which seem to do something. We can further such experiments and even undertake other experiments that are mutations of these.

When we have identified the resources suggested above we must have the personal courage and the professional integrity to utilize them. Their utilization may require a campaign, if not a full-scale crusade. To do this will require more than casual interest; it will require a commitment almost as deep in conviction as the sentiment expressed in "Old Ironsides:" "Humanity with all its fears, with all its hopes for future years is hanging breathless on thy fate." A carefully planned strategy and painstaking drudgery will be needed in the development of new pre-service teacher education programs.

A technical change takes place in small steps before the entire change has occurred. A large change brings a necessity for new knowledge for the operation and servicing of the changed machine or device. Such changes as these may make for immediate production of new models whose requirements for production, operation, and servicing must be met.

This fact leads us into a discussion of in-service programs for technical and vocational education. These teacher-trainer programs must provide whatever training they can as expeditiously as they can. Hurried identification and plans for utilization of resources to facilitate this training are the order of our time.

Industries from time to time find themselves in need of craftsmen who must be trained in a short time. To service these industries, two things are required, teachers and instructional equipment. Vocational and technical teacher education institutions may not expect to have either readily available. If the need is of sufficient urgency, the industries to be served may supply the necessary instructional equipment. Some agencies tailor their instruction to market demand by training people for jobs to which they will go immediately upon completion of their training. Two training agencies of this type are the Adult Occupational Train-Center at Woodland Hill, California, and the Occupation Industrialization Center in Philadelphia. Supplying these training courses with teachers is a big order, requiring the retraining of instructors in the specific area or securing from industry an experienced operative to give instruction.

In greater number are the MDTA Programs which train people for jobs for which there is a known demand but which also attempt to place the graduate in a specific plant or firm. These programs are supported by federal funds. These programs require staffs which must be recruited or trained to do the job.

Technical and vocational trainees require more than training in technical skills. To be successful, these trainees require basic education that gives them communicative and computative skills. Some trainees take courses to develop these skills in reading, speaking, and arithmetic before entering upon vocational skills training. Others take instruction in the two areas concurrently. Trainees at Tuskegee OMPER training program have been reasonably successful in following the concurrent pattern in which one area supports and reinforces the other.

Through their experience adult training administrators have found that in providing a coordinated technical or vocational instruction and basic education, they are meeting a recognized need.

Industries provide on-the-job or apprenticeship training because there are no other opportunities for the training,or because the prospective employer considers his needs to have peculiarities that may be provided for only in his establishment. The number of persons who follow service vocations and advertise themselves as being "factory trained;" may raise questions about the efficiency and output of vocational training institutions. To an industry in full production, training must be an ancillary enterprise.

Those developing vocational education programs might explore with industry the conditions and means by which they can perform the educational functions for such enterprises.

Even this is not enough. For persons who have not been employed in industry, brief courses of instruction in how to get and hold a job are necessary.

The California program to which I referred secured the cooperation of "charm school" operators who conducted a five-day course in "How to Get a Job" on a volunteer basis. Other training programs report similar means to provide this kind of instruction. Some training programs go even farther and provide a counseling program that gives attention to the individual worker's adjustment problems for the period of his initial employment.

Our communities abound with potential teachers of vocational subjects and related basic education. They may be given training in short-courses or continuing education courses to meet the immediate requirements.

Finally, let us remind ourselves that education is a social function and the school a social institution. Let us not look backward or inward to the education establishment for constructive and projective resources. Rather, we should consider the dynamics of a changing society and changing technology, identify the changes in process and the people who know most about them. We must prevail on the institutions and the persons involved in scientific exploration, in inventing, and in mock-up testing, to service teacher education now, so that teacher education may in return,service the world.

DEVELOPING COLLEGE-INDUSTRY COOPERATIVE PROGRAMS IN VOCATIONAL TEACHER EDUCATION

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The following presentation is based on Dr. Silvius' extensive experience with the cooperative work-study program in industrial education at Wayne State University that has been maintained through the years. Many experienced craftsmen and technicians in the Detroit area are now participating in this cooperative program in vocational teacher education.

Vocational teacher education departments have experienced with various approaches to provide the technical and professional preparation needed for the teaching of technical or vocational subjects. Several different plans have been tested in this field through the years by the Department of Industrial Education at Wayne State University. The purpose, then, of this formal presentation is to explain how it is possible for experienced craftsmen or technicians to register in the Cooperative Work-Study courses at WSU, as they move to complete requirements for the B.S. degree and prepare as teachers.

As technologies evolve and occupational training programs are added or changed in the schools, it is necessary that technically competent and professionally educated teachers be prepared in a setting that is focused on flexibility during initial pre-service preparation. It is fortunate that students entering teacher education programs, especially at institutions located where there is much industry in the community, come with varying amounts of industrial work experience and depth of knowledge in a specialized field. To accommodate this great range in initial industrial background, it has become necessary for a teacher education department to have one or more ways for mature and experienced craftsmen or technicians to bring this essential experience into focus with credit needed for a degree.

Traditionally, cooperative work-study programs are promulgated with a provision that the student spend a portion of his time, while in preparation for teaching, working in industry to acquire the basic and minimal skill and work experience essential for teaching an occupational education program in the schools. These traditional cooperative work-study plans have been deliberately planned to utilize the resources of local industries and a college or university. Primary emphasis in these partnerships between industry and education has been to make it possible for the student to become technically, and minimally, competent in his area of specialization.

With increased funds now available for vocational training, the emphasis on occupational education, and the shortage of qualified and skilled people for industry, many persons with extensive technical and industrial experience--often with years at the journeyman or leadership level--should now be encouraged to prepare as vocational or technical teachers and meet degree and teaching certification requirements.

These individuals soon observe, as they begin their studies, that they need more than technical competence and practical experience to teach in a specialized field. They recognize that they need to be well prepared: (1) To develop and organize teaching materials; (2) To develop a course of study; (3) To prepare instructional materials; (4) To plan a laboratory; (5) To counsel students; and (6) To present the content as it relates to their high-level of specialization and experience. Through the cooperative plan for such experienced persons at WSU, these very mature and able craftsmen or technicians register for four to ten quarter-hours in cooperative work-study during successive terms at the university. Here they come to convert their extensive work experience into college credit. In their work with the coordinator on a highly individualized basis, they learn to develop the teaching materials they will need later to teach in their technical or vocational specialization. Through the careful selection and planning of a series of college-level projects, selected to run concurrently with university registration, it is possible to help these persons make an adequate transition from journeyman tradesman or experienced technician to industrial educator. Because of the differing combination of interests, formal education,and technical competence of those enrolling in the Department of Industrial Education at WSU, it became apparent that there was need for such special consideration for experienced tradesmen or technicians through the WSU cooperative work-study program.

Wayne State University Coordinator Works Closely With These Journeyman Craftsmen or Technicians

Credit at the university is based, therefore, on advanced technical competence at the post-journeyman level. During the transition from an industrial setting to a teaching situation as these individuals work at advanced technical assignments, there is emphasis on professional orientation. This is done as the college coordinator counsels and directs the practicing tradesman or technician through a series of college-level projects designed to equip the potential teacher with professional experiences needed in organizing, developing, and structuring instructional material for a particular teaching speciality. In this way these mature craftsmen or technicians are able to translate their high-level, and most recently acquired, technical skill into content that is in keeping with current educational goals for occupational education in the schools or industries.

After visiting the craftsman or technician at his work station in industry, and in conference with him, the coordinator often finds it necessary to recommend that the student elect specific courses at the university in such areas as mechanical technology, manufacturing processes, and the like. This is done to strengthen and extend technical interest and overcome gaps or deficiencies in the technical background of these experienced craftsmen or technicians while they are students at the university. Or, the student may be directed to complete one or more technical papers to extend technical insights.

As these experienced journeymen or technicians are channeled through a series of college-level projects, selected on an individual basis in conference with the coordinator, they learn how to develop and organize teachable content for their areas of specialization. A major concomitant objective is that they learn to do research and have experiences in working on an independent basis. These college-level projects, selected and satisfactorily completed by an experienced craftsman or technician, make it possible for the university coordinator to evaluate not only the competencies of a prospective teacher in his specialty, but his eligibility for teacher certification as well. The teacher's readiness and eligibility become most apparent to professionals in teacher education by the time these experienced craftsmen or technicians complete degree requirements.

An unique aspect, then, of the WSU program is that it has become primarily a post-journeyman or post-technician level plan for becoming an occupational education teacher. Those who have finished are highly qualified to organize and present vocational or technical education programs in comprehensive high schools, vocational area schools, technical institutes, community colleges, or in industrial training. The student may elect as few as four, or as many as 54, quarter hours of college credit in cooperative work study as a part of his major, depending upon the character and nature of his industrial experience and the degree that such credit will be of benefit to him.

The record shows also that the program has been growing continually since its inception. It is encouraging for the staff in industrial education at WSU, that students from a large variety of occupations are enrolled who bring with them an equally diversified background of experiences to be shared with others enrolled in the organized and formal courses within the department.

Who May Enroll in this University Program for Experienced Craftsmen or Technicians

To qualify for this experienced phase of cooperative work-study program at WSU, a student must have reached journeyman status, or its equivalent in a technical area, or be in the process of completing a recognized apprenticeship in the manufacturing industries or building trades. The amount and character of industrial experience must be validated prior to the student's enrollment in the program. Experience reveals that a large number of students come with the necessary industrial experience to be eligible for enrollment in the cooperative work-study program.

As has been mentioned, it would be possible for one of these experienced craftsmen or technicians to enroll for as much as 54 quarter hours toward the B.S. degree through IED 2170, IED 3170, and IED 4170 (up to a maximum of 18 quarter-hours may be elected in one of these latter three courses). Usually students elect only six to ten hours each quarter under one of the three cooperative work-study course numbers, until they have earned the appropriate maximum credit. The number of hours elected by a student, in consultation with his adviser, will vary, depending on his technical interest, industrial background, and desire to pursue other technical courses that are offered by the university toward a major. To meet departmental and degree requirements for a major in industrial education at WSU a student may be programed for as few as 45 quarter hours, or as many as 60 quarter hours, to meet his major requirement.

An Orientation Session Held Each Quarter by University Coordinator

An orientation session for all persons enrolled, in any one quarter, is held on the first Saturday of a new term to enable those who are working full time to attend. Individuals enrolled for the first time remain to see a series of 2 x 2 slides, with a tape recorded commentary, that is presented by the departmental coordinator for the program; the commentary explains the objectives, procedures, projects, forms, and assignments that are needed to implement one's participation in the program. The forms that are to be completed and submitted to the department, during any one term, are distributed and explained at this briefing session.

Work of Experienced Craftsman or Technician Examined by University Coordinator

The student arranges with his immediate supervisor in industry for the WSU coordinator to visit him on the job. Frequently during these visits to industry the coordinator has an opportunity to confer with the supervisor, or delegated plant representative, regarding the student's abilities, proficiencies, and responsibilities.

It is believed that the success of this cooperative work-study program for these experienced craftsmen or technicians hinges, to a great degree, on the coordinator's sensitivity for observing technical requirements, surrounding physical conditions, and social adjustment exhibited by the student (tradesman or technician) on the job. The plant visit becomes, therefore, the vehicle for critical observation, evaluation, and a basis for projecting and planning projects to be completed for each registration in IED 2170, 3170, or 4170, projects that will be functionally meaningful and related to preparing the individual for an ultimate teaching situation in vocational or technical education.

The coordinator writes a report of his observation following each visit. A copy is sent to the departmental chairman, the student, and the student's supervisor (or some member of the management team) in industry. These reports serve as a feedback and departmental record of the student's activities, level of technical competence, and responsibilities, as well as the expectations of the employing company for the level of accomplishment expected of the employee.

Term Projects Help Translate High-Level Skills and Competencies into Materials Needed for Teaching Trade and Technical Subjects

In many cases, the technical skills and related knowledge essential for a vocational teaching assignment have been acquired by persons with journeyman status (or its equivalent) plus added experience in the specialization. To provide meaningful professional development experiences for these persons who have a wide range of occupational specialization, there must be flexibility in the type of projects undertaken by such students at the university. These cooperative work-study projects can be designed to further technical insights and to help these potential teachers translate their extensive industrial background into instructional materials that they will later find useful, as they undertake teaching assignments within their area of specialization.

Some of these more typical projects that are undertaken concurrently with a registration of four to ten quarter hours in IED 2170, 3170, or 4170 at WSU are:

- -- An annotated bibliography of texts and reference books and trade journals published for some one vocational or technical concentration.
- -- An annotated bibliography of films, slides, available transparencies, and programed instructional materials for some one occupational teaching area.
- -- Identify and then analyze courses of study, or study guides, now available from school systems, state departments of education, and other sources for some subject area.
- -- Preparing a course of study for some specific teaching situation.
- -- Identify teaching aids now currently available, or plan and construct teaching aids to support selected units for some specific course in industrial education.
- -- Writing technical reports related to a new process or recent development in a given area of specialization. To illustrate, recent typical subjects that have been researched and developed are:
    (1) "The use of Automated Drafting Machines in Auto Body Drafting"
    (2) "The Impact of Semiconductors on Electronic Packaging"
    (3) "Instrumentation in Metallurgical Industries"
    (4) "Research Development in Plastic Fuel Tanks"
    (5) "Numerical Control Machining and Its Imperatives for the Tool and Die Trade"
    (6) "Utilization of Portion Costing in Commercial Foods"
    (7) "New Machining Characteristics of Exotic Metals"

The Role of Coordinator

The University coordinator for such a cooperative work study program must be sensitive to available opportunities in all industries represented in the community. Previous experience in industry, in education, and in public relations contributes to his effectiveness and his ability to involve students in meaningful projects.

It is essential that the coordinator provide feedback for staff and students in the department of expectations of those who represent management in industry regarding what is needed in the way of technically skilled workers and needed curriculum innovations.

At Wayne State University the coordinator's responsibilities include:

1. Conducting an orientation meeting each term for all persons enrolled, followed by group or individual conferences so students will be familiar with requirements and procedures for each registration.
2. Approving and guiding the development of the term project.
3. Making a visit to the student at his work station in industry, or in school, and becoming familiar with the overall responsibilities and level of technical competence and performance of each person in the program.
4. Writing a report of each visit for the student's cumulative record, with a copy sent to the department chairman, student's supervisor, and the student. Such visits must foster good public relations between the department and the industries or schools involved.
5. Evaluating work experience reports, written assignments, and term projects.

6. Assisting and counseling those who express an interest in the cooperative work-study program.

In general, the coordinator serves as departmental staff representative responsible for the direction and assistance given students with individualized course instruction and the development of their several projects.

Some Conclusions Regarding the Values of the Cooperative Work-Study

1. Universities now need teacher education programs that are predicated on utilizing the resources of community industries in the preparation of teachers for occupational education.
2. Universities need plans that make it possible for experienced craftsmen and technicians to move rapidly to translate their high-level skills and competencies into appropriate college credit, as they pursue professional preparation for teaching technical or vocational courses.
3. As potential vocational and technical teachers gather experience in writing periodic reports, doing library research, and organizing instructional materials, they become competent in organizing and structuring technical content into a logical and teachable format.
4. Reports especially planned and done by students for this program serve as a vehicle for depth and breadth experiences--that reflect technical insights into industrial materials, processes, research, and developments.

5. The essential difference between the cooperative work-study program at WSU for experienced craftsmen and technicians, and those found more commonly at other institutions, is that the student must be reaching journeyman's status (or have reached its equivalent) to participate in the program. The emphasis is placed on helping the mature and experienced tradesman or technician relate his industrial experiences to the development of needed materials for a teaching situation, and to extend technical insights. This approach also makes it possible for the student to make the transition from industry to teaching with little loss in working time.
6. Industry in effect, is providing the necessary basic industrial training and equipment needed for the development of high-level technical competence now essential for the initial teaching of industrial subjects. As teachers take positions in the schools, technical institutes, and community colleges, they need to be encouraged to attend industrial school courses and institutes, or to engage in additional field experiences that will assist them in keeping up-to-date with technological advance.
7. Because of technological change there is a great need for education, government, and industry to work together in

preparation of industrial education teachers. This has become a necessity in the last third of the Twentieth Century.

8. The WSU cooperative program gives consideration to effective teaching methodology integrated with the prevailing technologies. The plan minimizes separation of technical content from methods of instruction. Persons become qualified to teach courses with goals and units that are focused on the "cutting edge" of technology, a significant concomitant.
9. Fortunately, many journeymen and experienced technicians are now anxious to improve and to continue their educational preparation and become teachers in the expanding education program. It is believed that through the careful analysis, assessment and direction of the students in this college work-study plan, it is possible for experienced craftsmen or technicians to make a systematic transition from industry to education.

IDENTIFYING, INTERPRETING, AND IMPLEMENTING RESEARCH FINDINGS IN TEACHER EDUCATION TO IMPROVE THE PRE-SERVICE PROGRAM

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Teacher education, research, and evaluation are important adjuncts to state programs of vocational and technical education. In the language of the Vocational Education Act of 1963 they are ancillary services to assure quality in all vocational programs. It has been general practice in the states to charge the state supervisor of each vocational field (agriculture, office and business, distributive, home economics, health, industrial arts, trade and industrial, and technical) with the responsibility to delegate and to supervise or to carry out the needed functions in these areas. The trend is toward unification, thus achieving better utilization of the talents of highly qualified specialists in teacher education, in research, and in state and local program evaluation.

Programs for Teachers

In most states the land-grant universities have been designated by the state board for vocational education to receive funds for support of approved programs for preparation of teachers. The functions that are to be performed, standards for training offered, and qualifications of teacher educators are specified in the state plan for vocational and technical education. Occupational competency and professional skill in teaching are required of all persons who are issued certificates or credentials approving them to be hired in positions in schools where the salaries are reimbursed from state and federal vocational funds. This is a major problem in pre-service education in all vocational areas. In agriculture it has been assumed that farm-reared high school graduates, especially if they have had high school instruction in agriculture and employment in agricultural positions in the summers between college terms, are occupationally experienced and need primarily the agricultural science and professional education courses to qualify as beginning teachers. The general and liberal education of the bachelor's degree experience at a first-rate university no doubt contributes greatly in preparing teachers of vocational and technical subjects to demonstrate leadership qualities and to inspire leadership in students.

Kellogg and Knapp (1966) surveyed the leading agricultural colleges and found that they "are now placing more emphasis on education for long-term intellectual growth and less on how-to-do-it training in techniques for the first job." Four main trends are (1) many colleges have increased general education requirements, (2) there is a reduction in the number of technician training courses in agriculture, (3) there are fewer tightly-prescribed specialized curricula, and (4) more emphasis is placed on flexibility so that a student with the help of his counselor can work out a suitable individualized program. These changes have important implications for students preparing to teach in vocational-technical schools and departments. Academic excellence encouraged by studying in greater depth in a particular field prepares and helps a young man to be more effective in his area of occupational specialization when employed on a faculty in a school of a size sufficient to offer varied programs.

Perhaps the one most valuable pre-service professional course is student teaching. The best university teacher education departments arrange for each senior to spend the equivalent of a term, quarter or semester working in an outstanding school in the state. The experience is an internship or may be likened to cooperative work experience, usually without salary or stipend. The trainee is accepted in the school as though he were a regular staff member and he is given an opportunity to experience a cross-section of the normal teaching and other duties of a teacher. Cooperating teachers receive special workshop training for their supervision of student teachers.

The teacher education department generally accepts considerable responsibility for in-service education of employed teachers. This is done in co-operation with the state supervisory staff and with the local school officials who supervise vocational teachers. Special attention may be given to first-year teachers; individual visits and regional group meetings are scheduled regularly in some states.

There are incentives in most school policy statements that encourage experienced teachers to enroll in off-campus courses and to return to the university for evening, Saturday and summer courses, generally for graduate credit. It is not uncommon for one-third to one-half of the teachers in a state to hold a masters degree. While earning the degree a thesis research experience increases the teacher's compentence and may produce results worth being used in other schools, thus, the research function of the university is extended.

Research is the orderly process of obtaining answers to significant questions. Inquiries worthy of systematic search for functional solutions demand a creative, imaginative approach. The dynamics of change provide basic motivational force. A thorough acquaintance with the theoretical constructs and operational trends that are taking place in vocational-technical education is antecedent to the design of research projects worth expenditure of time, talent,and funds.

The Committee on Research, American Vocational Association, (1963) opened a promotional booklet intended to encourage research with the statement: "More important to progress in vocational and practical arts education than the establishment of specialized agencies of research--significant as that may be--is the development of a research attitude in every educator, from the state director to the local coordinator and teacher. There must be, on the part of everybody engaged in these fields, a clear recognition of the urgent need for and value of educational research."

It is as necessary in the behavioral sciences as in the physical and biological sciences to recognize the complementary functions of research, development, and dissemination. Basic research is not only conducted in laboratory situations but it is most likely to be carried out by well-trained research specialists. Development, in industrial research organizations, follows basic discoveries. Schools are challenged that some developmental projects are organized to compare techniques and procedures for which basic research antecedents are lacking. There is the other complaint that the time lag between productive basic research and effective general dissemination is too long. State directors, as administrators of research programs and funds, must give these issues serious consideration. Project proposals designed by university research staff members must be cognizant of competing objectives.

With funds of Section 4-c of the Vocational Education Act of 1963 the Bureau of Adult and Vocational Research, U. S. Office of Education, has promoted establishment of a Research Coordinating Unit in each state. As qualified staff members establish relationships with universities and schools and as projects involving two or more occupational fields are initiated, the merit of the coordinating concept may be appraised.

The AVA publication, You and Research, concluded its appeal to all vocational and technical educators to engage in research with an encouragement of cooperation: "If one fact stands out above all others, it is that the problems of research cannot be solved by any one agency. The cooperative efforts of all groups concerned with vocational and practical arts education and its products must be focused on the problem. Labor and management groups, farm organizations, business and distributive enterprises, and homemakers' groups should be called upon for assistance. Many such groups, or individual firms, are interested in solving specific problems and are willing to work with the schools on cooperative research studies. School people must team up with other groups to find solutions which are quickly applicable so that the vocational and practical arts education of tomorrow will be the best we can conceive today."

It is relevant for the human aspirations of people who elect to commit their productive work careers to employment at vocational and technical levels that should guide teachers in this broad field as they expend their creative talents and emotional energies to promote freedom of each student to achieve his maximum potential in a sound philosophical framework. Work is a fundamental element in the development and integration of personality. It has social significance of unlimited proportions. Superior and average students readily obtain and profit from professional and technical education. For the disadvantaged, vocational-technical training is a liberating experience that lifts the person from the unemployed and impoverished to independence and human dignity. Occupational education is a right and a necessity as well as an opportunity of unbounded dimensions. It is one of the best investments that can be made by an individual, community, state, and nation.

In order to have an opportunity to adapt and utilize the results of research done by others, reports of the findings must be accessible. The Office of Education has established the ERIC clearinghouse and publication system to aid in achieving this objective. The series of review papers from which excerpts on the following pages have been taken is an important advance step in this direction.

It has been a regular practice of the American Vocational Journal editors to carry reports on significant research. Plans are under way to greatly increase this service.

University Microfilms, Inc., has published Dissertation Abstracts Magazine since 1951 as a very valuable dissemination device. The Office of Education has issued annotated abstracts of research in several vocational fields over a considerable period of years.

The AVA research seminars held on numerous university campuses since 1963 have been of great value, especially since they brought together leaders in research in all vocational fields. Regional research conferences of divisions of AVA have served admirably to upgrade pre-service teacher education.

A considerable number of teacher education departments regularly involve upper-class undergraduate students in problem solving activities that may be classed as action research. Often this is done in connection with student teaching. The practice is worthy of adoption generally, and will be greatly enhanced by team approaches involving related disciplines as well as industry, government and citizen groups.

Review and Synthesis of Research in Agricultural Education
(Teacher Education, pp. 77-90, and 116-117)

Studies of the perception of the role of the teacher of agriculture reveal conflicting findings regarding the teachers' role both within the profession and with other groups of professional educators. Drake (1962) studied the perception of the role of the teacher of vocational agriculture held by superintendents, teacher educators, state supervisors, and teachers of agriculture. He found that the lack of consensus appeared most often in the role areas pertaining to young farmer and adult farmer education. McComas (1962) found that effective teachers of agriculture and their administrators were in greater agreement concerning the role expectations of teachers and the performance of teachers than were ineffective teachers and their administrators. C. D. Bryant (1963) compared the priorities beginning teachers gave and perceived should be given to the professional roles of the teacher of agriculture with the priorities experienced teachers perceived for beginning teachers.

The critical shortage of teachers of agriculture is indicated by data compiled by the Professional Personnel Recruitment Committee of the Agriculture Division, American Vocational Association (Woodin, 1966). The committee reported that 1,003 persons began teaching agriculture during 1965 in the United States. The turnover of teachers of agriculture was approximately 10 per cent. Studies which follow up graduates who have qualified to teach agriculture in the public secondary schools indicate that approximately two-thirds of the graduates teach agriculture in the secondary schools some time during their career.

The findings of a comprehensive survey of student teaching in agricultural education in the United States was reported by O'Kelley (1961). The report of the study included findings pertaining to the selection of supervising teachers, the selection of schools as centers for student teaching, administrative policies, and procedures pertaining to student teaching, criteria for admission of students, experiences provided student teachers, and evaluation of student teachers and the program of student teaching. Rogers' (1964) study was designed to identify the personal and professional characteristics of supervising teachers relating to their role as supervisors of student teachers in agricultural education.

Research pertaining to inservice education in agricultural education has not been extensive. In view of the revision of existing programs and the development of new programs of agricultural education at both the high school and post-high school levels, it is imperative that the re-education and upgrading of teachers and other personnel in agricultural education be given prompt attention. Love and Stevens (1964) investigated experimentally three sequences of scheduling classes and three patterns of instruction relative to their effectiveness for providing inservice education for teachers of agriculture. Miller (1965) utilized adoption-level theory to measure the progress made by teachers of agriculture in North Carolina toward the adoption of a new concept of supervised practice. He found that within a period of 17 months, two-thirds of the teachers in the sample were in the evaluation state of adoption. One-half of these teachers were ready to begin the trial stage.

Hemp directed an institute for teachers of ornamental horticulture which was held at the University of Illinois during the summer of 1966. Training institutes designed to provide teachers of vocational agriculture with competence in distributive education helpful for the conduct of programs of agricultural business were conducted at Oklahoma State University during the summers of 1965 and 1966 under the direction of Hull. Curriculum research should be continued to insure that instructional programs are kept up to date. The implementation of curriculum innovations through pilot programs and demonstration centers should be accelerated. The vast amount of instructional materials being developed should be field tested and revised to insure their maximum effectiveness.

Review and Synthesis of Research in Business and Office Education
(Teacher Education, pp. 74-84, and 104-106)

The quality of any business education program is determined in large measure by the quality of the business teacher and by the quality of teacher education programs. On a non-research basis, many would agree with Wanous (1966) who wrote: "There is a widespread consensus that business teachers should spend five years in collegiate preparation for a teaching career. This preparation should consist of the following five parts: A broad background in the arts and sciences. A comprehensive knowledge of the fields of business and economics. An understanding of learner behavior and the learning process. A knowledge of the curricular materials that are available in the subject speciality of the teacher. Skill in managing a classroom, organizing learning activities, working with students, and supervising the learning process."

Another source of information on the preparation of business teachers will be available with the publication of the Guidelines for the Preparation of Office Occupations Teachers developed by Cook (1966) and others through a USOE-funded project. By design, the project must be described as "action" research. The value of the guidelines rests on the spread of authoritative opinion throughout the United States on what teacher education should be. Both of the foregoing authoritative sources, however, may do a disservice by discouraging future innovation and research--research in which teaching functions could be reclassified into numerous professional and paraprofessional levels of performance in business and office education.

Stanford University's experimentation in micro-teaching has not been reported as used in business student teacher preparation. Micro-teaching is a promising technique developed as a "scaled-down teaching encounter . . . to serve two purposes: (1) as preliminary experience and practice in teaching and (2) as a research vehicle to explore training effects under controlled conditions" (Bush and Allen, 1964; Allen and Fortune, 1965).

The supervising teacher, as well as the student teacher, has been singled out for special attention in research. Gibbons (1960) studies the factors that influence the excellence of superior supervising teachers in business education and concluded that: "The superior supervising teacher's outlook on student teaching was the key characteristic of the general personal and professional characteristics which differentiated the two groups . . . the superior supervising teachers were more active in terms of teaching activities and professional extra-class activities than were the typical teachers."

Business and office education research reflects a past and present quality of productivity which is not as reliable and useful as it could or should be. Looking to the future, business and office education research has not been as good as it will be. Our major conclusion, therefore, includes: (1) We recommend a growing critical dialogue about research, an evaluation and selection of research methodology and findings. (2) We recommend the continued stimulation and upgrading of research competencies, first among teacher educators and second among their graduate students. (3) We urge an increased interdisciplinary effort in stimulating research in business and office education.

Review and Synthesis of Research in Distributive Education
(Teacher Education, pp. 128-141, and 171-181)

Distributive teacher education prior to World War II was performed almost entirely on an in-service basis through workshops, summer-session courses, supervisory conferences, and on-the-job supervisory visits. Following the war, a number of colleges and universities installed pre-service distributive teacher education programs headed by practitioners who built curriculums based on their own educational and occupational experience with advice from their colleagues and state supervisory personnel.

Early doctoral studies relating to cooperative program organization and administration, such as the Banks study (1943) and the Runge study (1953), and to the duties and responsibilities of a teacher-coordinator, such as the Keeling study (1946) and the Cassady study (1950), contributed to the development of curriculum content. This was particularly true of the Runge study which furnished information for a teacher-education textbook.

The Willis study (1954) was the first to be devoted entirely to "teacher training." Willis gathered information from numerous sources to ascertain the status of distributive teacher education and subjected her findings to a jury of experts.

The Warmke study (1960) of distributive education issues in 1959 was of considerable value to teacher education from two viewpoints. It provided the opinion of leaders in the field on certification requirements and qualifications and it increased teacher educators' confidence in the practices and procedures which they were teaching.

Marks and Beaumont (1962) prepared a report on the first (and last) conference of national leaders in distributive teacher education in Chicago, June, 1961. This report on the U. S. Office of Education-sponsored conference is the most comprehensive publication on distributive teacher education to date.

Haines (1964) studied the differences between the preparation needed by high school teachers of distributive subjects and teacher-coordinators in distributive education to teach the elements of subject matter in the classroom. This was done by using a questionnaire and a check list of subject-matter elements to be rated by schools offering distributive teacher education.

Meisner (1966) found that no causal relationship existed between the amount of teacher preparation in economics by distributive teachers and the level of economic understanding achieved by their students as measured by the Test of Economic Understanding - Form B. in the population which he studied.

Both Council for Distributive Teacher Education professional bulletins of 1963 deal with aspects of in-service teacher education. Scannel (1963) investigated off-campus responsibilities of distributive teacher educators.

Carter (1963) gathered data on the role of the distributive teacher educator in adult education.

Relatively show progress was made in the development of distributive education research since its inception, during the first decade of the current century through the middle of the 1950's. However, the general interest in research seems to have had its effect on this field, Samson (1962) stated that the growth in research activity during the six-year period, 1956-62, appeared to exceed that of all previous years. State departments of education and teacher education institutions have conducted research jointly and independently, which has made increasingly valuable contributions in Virginia, Michigan, Kansas, Pennsylvania, and other states.

Review and Synthesis of Research in Home Economics Education

(Teacher Education, pp. 49-70, and 85-90)

The number of studies carried on previous to 1959 in teacher education is second only to the number relating to secondary school curriculum. This is not surprising since it is commonly accepted that the teacher is the crucial element in the secondary school program.

One of the most important aspects of teacher education relates to the student who is preparing to become a teacher. Some selection takes place through attrition but the prospective teachers lost by this process may not be the ones who are least likely to be successful teachers. Gaskill (1965) investigated the academic standing and certain personal qualities of 282 students at Iowa State University to determine differences among three groups. Scores were used from two personality inventories, the Guilford Zimmerman Temperament Survey (GZTS) and the Minnesota Counseling Inventory (MCI), as well as scores from an attitude inventory, Just Suppose Inventory (JSI) and an interest inventory, Johnson Home Economics Interest Inventory (JHEII).

Ford and Hoyt (1960) in an exploratory study investigated the psychological characteristics of homemaking teachers on the assumption that these would contribute to the selection of students preparing to teach. These characteristics were also related to classroom effectiveness. A sample of 712 teachers in 26 states were administered a biographical data form, six attitude inventories: The MTAI and five constructed as part of the project. Eighty-five of these teachers, selected at random, were observed for at least one-half day and rated on the basis of Criteria for Classroom Effectiveness. Pupils in one of their classes responded to a pupil-relationship inventory.

Cross (1960) also sought the judgment of teachers in evaluating pre-service programs. She obtained responses from 301 first-and second-year homemaking teachers in 42 states. The majority of respondents indicated satisfactory college preparation for two-thirds of their activities. Areas of inadequate preparation in subject matter were: food production, housing, and home improvements. Community relationships; working with an advisory council, with boys, and with FHA and NHA; and participation in the total school program and in community activities presented problems for which their college program had not adequately prepared them.

To locate the areas of greatest and least satisfaction in student teaching and to determine if there is a relationship between satisfaction and the number of activities experienced, Chamberlain (1962) developed a check list which was administered to 64 student teachers from five universities and colleges in Eastern and Southern states. The areas of greatest satisfaction were found to be those concerning relationships with their supervising teachers and their pupils. The areas of least satisfaction were related to the home economics facilities in the centers and their teaching and co-curricular load.

In any field, two very important factors influencing quality of research are the number of qualified personnel and the instruments available for data collection. Considerable progress is evident with respect to both in recent years. Only a bare beginning has been made in developing instruments for use in wage-earning programs. Blackwell, Nelson, and Jacoby (1966) have four instruments: Becoming Employable Scale, Attitudes toward Work Scale, Waitress Scale, and Caterer Scale. Loftis (1966) also has developed a scale, My Future Plans.

The first of these is documented by the research included in this review. Large number of theses, particularly in curriculum, are based on one school system. Useful as these may be locally, they contribute little to the whole. If institutions or states developed an over-all plan for sampling a state or region, then studies by students could fit into the plan and make a greater contribution.

Review and Synthesis of Research in Industrial Arts
(Teacher Education, pp. 40-52, and 55-62)

The research in this field falls into four categories. Much research has been done to identify the abilities and personality factors of those who would and those who do teach industrial arts. Some research has also been conducted in undergraduate teacher education curriculum, in problems of student and beginning teachers, and in graduate education.

Several studies attacked the problems of industrial arts teacher personality. Morgan (1961) determined personality variables which are prominent among industrial arts teachers as measured by the scale of the Edwards Personal Preference Schedule. He found that the instrument differentiated between industrial arts teachers and a normative group of college men and between successful and unsuccessful industrial arts teachers. In his work with the Minnesota Vocational Interest Inventory, Howard F. Nelson (1962) developed keys which discriminate between satisfied and dissatisfied experienced teachers as well as satisfied and dissatisfied freshmen in industrial arts teacher education programs.

Blomgren (1962) engaged in a study concerning the relative growth in understanding of American industry of selected industrial arts education majors. He compared the results of a test which he formulated and administered to freshman and senior groups of industrial arts education majors and social science majors.

Christoffel (1960) developed a handbook for master teachers who work with student teachers in industrial arts. Cappiello (1964) studied selected teaching problems through the appraisals of supervising teachers and recent industrial arts graduates. He determined desirable experiences, methods, and techniques which pertain to the functions of the student teacher, the supervising teacher, and the responsible college personnel.

Moss (1966) gathered information concerning the pre-vocational value of senior high school industrial arts. He compared the scholastic achievements of statistically equated groups of students in four different clusters of post-high school trade and technical curriculums on the basis of several industrial arts related variables. According to Moss (1966, p. 24): "The study showed that academic courses, particularly the physical sciences, were apparently as effective in preparing the students who took them as industrial arts was for the students who enrolled in it. The results, therefore, indicate that industrial arts educators should be a great deal more conservative in the future than they have been in the past about justifying senior high school industrial arts on the basis of its greater pre-vocational value for all youth who intend to enter post-high school trade and technical curriculums. As most programs now exist, they are probably not in a position to "put up." Moss has some justification in speaking as he does. He has moved into unexplored territory--the testing of objectives--with relatively sophisticated research techniques. It is an area in which much more work needs to be done.

Some excellent examples of research exist. Highly refined research techniques were employed and reflect high standards which should be emulated. This has been achieved mainly in some of the experimental work, some follow-up research employing causal-comparative methods, and in some philosophical studies. Cited ongoing curriculum projects reflect high standards of objectivity and clarity of purpose as far as this is possible in that type of research. Unfortunately, there is research in the field which does not achieve high standards.

Some of the research cited has proceeded within a framework of theory. Observable trends in this respect point to more of this--a healthy approach. Further, the testing of theories in education suggests team research whereby behavioral scientists, social scientists, and industrial arts specialists cooperatively attack problems. Certainly the industrial arts researcher must at least be acquainted with research techniques in those fields if his research is personally conducted. A large number of studies have been done on a great variety of topics in the field and while there is room for criticism, quality seems to be improving.

Review and Synthesis of Research in Technical Education
(Teacher Education, pp. 31-33, and 45-46)

In an early study the role of the departmental chairman in industrial teacher education was viewed from the point of view of preparation, experience, activities, and working conditions (Minelli, 1958). In this doctoral study a questionnaire check sheet was used to obtain information from 123 chairmen of such departments.

In order to strengthen teacher preparation in the subject-matter area of the electrical field, a researcher (Jelden, 1960) compared the basic informational content of textbooks and other instructional materials used in electrical courses offered to industrial education majors in teacher-education institutions with the basic electrical knowledge required of persons who work with electronic devices in industry.

The occupational self-image of teachers was explored in another study by a doctoral candidate (Nelson, 1962). The investigator employed Dr. Robert Dubin's "central life interest" inventory in addition to one developed to measure the major work-role in industry of 230 selected teachers. In another study several unique aspects of technical teacher characteristics with implications for teacher recruitment and training were revealed (Cotrell, 1960).

Three studies were concerned with in-service teacher education. One of these (Brantner, 1964) was mainly concerned with the in-service education activities in which the technical and industrial teachers had participated and desired to participate. In another study (Silvius, 1965) of the practices and policies essential to keeping industrial education teachers of Michigan qualified, 56 persons were selected to react to issues formulated from a number of pertinent factors.

A research activity (Minelli, 1965) encompassing a three-fold plan of involvement of the university, the community colleges, and the high schools with industrial firms in a partnership relationship to strengthen teacher preparation was recently supported by an extensive grant of the Ford Foundation. The program still in progress represents a realistic approach to teacher education.

A study (Larson, 1965b) of the preparation of 138 teachers in industrial-technical programs in community junior colleges of Michigan established profiles of preparation in subject-matter areas and pedagogy as well as actual years of teaching experience and closely related industrial experience. In two recent papers, qualifications of teachers of technical subjects were carefully analyzed. The first paper (Dobrovolny, 1963) identified the requirements for a faculty member essential to a quality program in technical education. The second paper (Dobrovolny, 1965) identified the essential preparation of technical teachers.

The role of colleges and universities in the preparation of teachers of technical education subjects was mentioned in several instances in the challenging report by the American Council on Education (Venn, 1964).

The experimental method is the most scientifically sophisticated research method. Technical education bordering on the realm of science is a field in which, hopefully, much more experimental research will be completed. While several studies have been made in the fields of

"Manpower Needs and Employment Opportunities" and "Curriculum Development," other highly significant fields have been practically ignored.

A unified, organized approach to research in technical education is essential if the necessary impact is to be made! Technical education must develop the same type of philosophy toward research which is now prevalent in the research installation of a modern, major industrial enterprise. Facilities, "tools of research," and adequate support personnel must be provided, plus additional financial support, if research in technical education is to really provide the vital and much needed stimulant to meet the needs of the "front ranks" on the battle-line of quality and quantity in technical education.

Review and Synthesis of Research in Trade and Industrial Education

(Teacher Education, pp. 35-43, and 56-57)

A review of 54 studies dealing with Trade and Industrial teacher education was prepared by O'Brian and Schaefer (1966). Many of the studies they reviewed are reviewed here.

That teacher recruitment is clearly a problem area was highlighted by Venn (1964) when he said: "One of the greatest handicaps to the improvement and expansion of vocational and technical education is the desperate shortage of qualified teachers and administrators." Schaefer (1963) contended that yesterday's solutions for recruiting T & I teachers were based on yesterday's technology. Furthermore, Giachino (1961) contended that selection procedures must be updated as well and has developed some techniques along this line. Considering selection devices, Impellitteri (1965) analyzed individual scores on trade competency exams and found that the number of years of industrial experience the individual had was not predictive of his performance on the test. Data collected by Fagan (1960) indicated that ways should be found to identify future vocational teachers while they are still students in our schools, provide these people with challenging programs and place them in situations where their potential as teachers can be evaluated.

Feirer (1961) contended that vocational teachers must not only be adept in the content of their field but must also have a thorough grasp of methodology. This requirement for theory and practice, intellectual exposure and practical experience, knowing "how to teach" as well as "what to teach," having breadth and depth in industrial work experience and the same in technical courses as part of industrial teacher preparation has been emphasized and re-emphasized (Smith, 1963; Schill, 1964b; Silvius and Ford, 1965; Walsh and Selden, 1965).

Allen (1964) reported on two core programs for trade and technical teacher education developed at UCLA. These programs utilize team teaching and varying class sizes and are an attempt to solve some of the problems associated with sequencing and coordination. Ramp (1962) advocated the cooperative trade and teacher training approach beginning with young people who have made a career decision to teach.

In the final analysis, the best test of teacher training is the quality of offerings provided by those teachers. In anticipation of findings to be discussed in detail in the section on Evaluation, teachers are doing a high quality job in T & I education. The problem is in recruitment and number of teacher education programs: there simply are not enough teachers. Moreover, teachers are going to have to be provided with more skills necessary to teach the culturally disadvantaged, often nonwhite, ghetto youth. This is the area where research and development must blossom.

One must conclude with a general indictment of the vocational education profession concerning the area of research. The last time an issue of the Review of Educational Research was devoted to research in vocational education was in October, 1962. In that issue, Wenrich, Swanson, and Evans (1962) reviewed research in vocational, technical, and practical arts education. They identified most of the research they reviewed as having been done by graduate students and subject matter specialists, rarely by professional researchers.

Part of the answer lies in attracting individuals from other disciplines to vocational education, but the primary answer lies in having a "farm system"; the graduate departments of vocational-technical education across the country must turn out research-oriented, research-talented individuals at the doctoral level to help fill the gap and elevate the position of vocational research to a level appropriate for its social importance and equal to its existing problems.

References

The materials on pages 4-10 are excerpts from the following recently published (1967) review papers available at $1.50 per volume, $10.00 for the set of seven, from The Center for Vocational and Technical Education, The Ohio State University, 980 Kinnear Road, Columbus, Ohio 43212:

Warmbrod, J. Robert, Lloyd J. Phipps, Review and Synthesis of Research in Agricultural Education.

Lanham, Frank W., J. M. Trytten, Review and Synthesis of Research in Business and Office Education.

Meyer, Warren E., William B. Logan, Review and Synthesis of Research in Distributive Education.

Chadderdon, Hester, Alyce M. Fanslow, Review and Synthesis of Research in Home Economics Education.

Streicher, Jerry, Review and Synthesis of Research in Industrial Arts Education.

Larson, Milton E., Review and Synthesis of Research in Technical Education.

Tuckman, Bruce W., Carl J. Schaefer, Review and Synthesis of Research in Trade and Industrial Education.

Selected volumes in the Library of Education published by The Center for Applied Research in Education, Inc., New York, have sections relevant to pre-service vocational teacher education:

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RECRUITMENT OF STUDENTS FOR TEACHER EDUCATION PROGRAMS

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At a meeting of the Professional Personnel Committee in Agricultural Education at Denver, Colorado during the December, 1966 convention of the American Vocational Association, the several members agreed that the shortage of teachers of vocational agriculture might develop into a major crisis unless prompt concentrated action were to be taken in each of the 50 states.

The current shortage of vocational agricultural teachers is matched by a critical shortage of school teachers for all types of education, a shortage brought into focus at the opening of the 1966-1967 school year when superintendents and principals were forced to take to the road in their search for eligible recruits. Some teaching agencies, according to Fredelle B. Maynard of Howard University, stated that they could not see how some school systems would be able to open this year.

There are several important reasons for the critical shortages of teacher personnel: Not only are the "population explosion" and growing school enrollments bringing about an ever increasing pressure for new classrooms and school buildings, but industry is competing rigorously in the market place for many of the available teacher personnel.

Moreover, persons who would ordinarily become excellent teachers are entering the military services, the Peace Corps or the Teacher Corps, or similar Office of Education and Office of Economic Opportunity programs.

Finally, teachers are as human as anyone else; and when the higher salaries of fields other than education are offered them, they, too, tend to abandon their specialty for financial reward.

The sociological reasons for teacher shortages, population pressures and industry competitivity, are not the only factors in the situation. In all 50 states, individuals who desire to enter the teaching profession cannot be certified to enter a classroom until they possess a stipulated number of education courses and courses in psychology or other esoteric specialties.

These several factors have combined to create a shortage which--a recent study at Ohio State University has revealed--by the end of 1966 will number 371 vocational agricultural jobs in the state of Ohio alone. The Ohio State study showed that 41 states were experiencing a deficit in the supply of teachers entering the vocational agricultural classes; in fact, the shortage of teachers of vocational agriculture was greater in 1966 than in 1965.

Mr. Maynard proposes, as an answer to the recruitment problem, that each presently employed vocational agriculture teacher send a student to the teacher training institute every four years. With this procedure he hopes to enroll 2,581 vocational agriculture graduates each year; of that number 80 per cent or 2,065 would graduate from a teacher training institution. If 60 per cent of these teaching graduates entered the profession of teaching, the nation would be provided with 1,239 replacements.

On the demand side, a 10 per cent turnover of teacher personnel in a year would require 1,032 teacher replacements; and a 3 per cent growth in the number of departments would require an additional 309 teachers for a total of 1,341. Thus, as Mr. Maynard shows, the nation still has more vocational teachers jobs than it has candidates to fill them.

The pressing importance of the shortage of vocational agriculture teachers--and the shortage of all teachers as well--as for the welfare of the nation, was emphasized repeatedly by Lyndon B. Johnson, President of the United States, during his address at the dedication of a new vocational-technical department at Crossland High School, Camp Springs, Maryland last April. The President traced the history of vocational education in America and reviewed the educational partnership which has helped millions of Americans to learn vital skills in agriculture, in home economics, and in industry. President Johnson stressed the startling changes that will take place in America in science and technology before the year 2000 when he stated "every citizen who hopes to play a productive role in American society must have occupational training of a sort--whether he wants to be a brain surgeon, airplane repairman, x-ray technician, or an astronaut." "Constant change," President Johnson stated, "will simply wipe out hundreds of occupations that exist today and will create hundreds of other occupations that will require new knowledge and new skills."

Johnson described the growth of the vocational education movement throughout the nation; in 1963 when the Vocational Education Act was passed only 4½ million students were enrolled in federally assisted vocational classes. Today the 4½ million students have grown to 7 million and the 400 vocational schools in 1963 have grown to almost 800. "In 1963," Johnson stated, "the U. S. Office of Education spent only $700 million a year to support education; today that amount has grown to more than 4.2 billion, seven times as much per year."

Now, we get deeper into the subject of recruiting students for teacher education programs, it might be well to review the factors which make for a "good teacher." According to Harold Howe, II, U. S. Commissioner of Education, there are six major factors which make for the good teacher:

1. He should be intelligent.
2. He should be well-informed.
3. He should be deeply committed to this subject.
4. He should be poised, imaginative, compassionate, and generous-minded.
5. He should care about and understand the young.
6. He should teach the child, not the subject.

These qualifications of the "good teacher" are admittedly ideal. That there are such teachers cannot be denied, but "good teachers" are recruited only infrequently. And the difficulty with which the "good teachers" are hired continues to be a real problem in these small colleges and universities not only for this reason, but for many reasons.

At the small college for example, the program of teacher education is primarily an instructional program. At the larger colleges and universities, however, teacher training is accomplished not only by means of an instructional program, but through an extensive extension program and the provision of elaborate research funds and equipment.

In the large institution, moreover, the athletic program stimulates and attracts the youthful students far more than the less glamorous small colleges.

These small colleges are also at a disadvantage in providing scholarships and other financial assistance. Perhaps the most significant reason why recruiting is difficult at the small college is the fact that the teachers of wide reputation and the researchers well recognized for their ability are not to be found in the small institution, but are found, instead, on the faculties of the larger institutions where they are provided with adequate facilities, equipment, higher salaries, and research grants. There is undoubtedly a sizeable amount of truth in these reasons why recruiting continues to be a problem in the small college. Yet, on the other hand, the small institution does have a number of advantages which are still unique in attracting recruits for teaching education programs. At the small institution, for example, a teacher trainee is still a human being; he is a student, rather than a number. He has greater opportunities for personalized guidance and assistance than are available at the larger college and university. The bond of relationship at the smaller college between the student and the teacher still remains strong within the boundaries of the small classroom.

Aisde from these several advantages, there are other reasons why teachers and teacher-trainees might desire to attend the small college. At the small college, each student can be very influential in attracting other students to the institution; as a trained teacher-product of his alma mater the graduate continues to recruit students throughout his lifetime. This may not be the case at the larger institution where degrees and education are mass-produced.

Moreover, at the smaller college the actual opportunity for outright failure is less because teachers provide the individualized attention that under-achieving students often require. In addition, the smaller institution extends itself to developing every student to his greatest potential, a form of personalized educational activity for which the larger university is not fitted. Despite these several real advantages, the small college still experiences difficulty when it attempts to enter the market place to recruit students for its teacher-trainee courses. The recruiter for the small college teacher-education curriculum can be materially assisted in his mission when the administration of the college comes to appreciate the several functional aspects of teacher-trainee recruitment:

1. The institution should be able to place its graduates in good teacher positions with attractive salaries.

2. The institution should be prepared to indoctrinate its students within almost certain knowledge that he is being trained for a definite job upon his date of graduation.

3. The institution should be prepared to provide an enriched program that will acquaint students with the needs and the great possibilities for service, professional growth, and promotion when he graduates as a full-fledged teacher.

4. The institution should be prepared to free the new teacher-trainee student from dependence on the home environment and to develop in all its teacher-trainees the individual's sense of independence and an awareness of his own progress at his own rate of speed.

5. The institution should be prepared to venture out to the parents' homes, if necessary, to assist the parents in recognizing the individuality of the teacher-trainee as a mature, young adult.

6. The institution should be prepared to encourage the students to become aware of successful former graduates of the institution.

7. The institution should be prepared to implement a teacher-trainee recruiting program that is complete and conducted on a continuing basis and makes use not only of the faculty institution but student capabilities as well.

8. The institution should be prepared to conduct a forthright and continuous program of public relations in support of its recruitment program.

These have been several explanations and discussions of the continuing problems experiences by small colleges and universities in recruiting students for teacher education programs. With President Johnson the speaker believes that in vocational and technical education "we are creating a forge which will shape the lives and the careers of our young people--and through these young people we will build the America of the 21st Century."

RECRUITING, UPGRADING, AND DEVELOPING ADEQUATE FACULTY IN THE SUBJECT AREAS WITH SPECIAL REFERENCE TO OCCUPATIONALLY ORIENTED SKILLS

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This multiple purpose, multilateral subject presents a challenge to all persons who are interested in vocational-technical education. It seems to imply that there is an urgent need for additional teachers who are more adequately prepared to teach in the area of occupationally oriented skills. This need has especially been more apparent since the passage of the Vocational Act of 1963, when emphasis on the teaching of skilled crafts became redirected to the occupational training needed by students interested in this type of education.

A review of the literature should reveal many suggestions that have been stated on the subject. These suggestions are stated very vividly in the trade magazines and other publications, including those published by the Federal Government.

It is my implication at this point, that better use be made of what has already been revealed on the subject. We know, however, that the search must be continued, at all times, on all levels, for better ways of recruiting, upgrading, and developing the faculty.

Recruiting

Perhaps the most important factor in recruiting begins with the development of a good approach by a good teacher. Teachers who are genuinely interested in their students and their work will seek to perpetuate that interest through their students. They will usually spot a few capable students whom they would like to see become teachers, and work diligently to bring the students to the full realization of their interests and goals.

The importance of this idea must not be lost through the lack of accepting responsibility. Ralph E. Bender, Teacher Education, Ohio State University, in an article entitled "Recruitment Responsibilities," stated that "Teachers . . . are in the best position to develop understanding about their work with prospective teachers. If teachers are to be effective recruiting agents for the profession, they must demonstrate, by example, that their work is pleasant, challenging, and rewarding."[1]

Turning now to a more formalized recruitment program, perhaps consideration should be given to what is being practiced in Camelback High School, Phoenix, Arizona, as reported by William J. Anderson in the December, 1966, issue of School Shop magazine. In addition to an annual meeting of the Central District Industrial Education Association of Arizona, where each teacher brings at least one student who is interested in teaching industrial subjects, the high school in Phoenix has worked out a plan whereby one day would be devoted to a discussion dealing with certain basic attitudes and understandings about the teaching profession. The basic assumption was that "If the profession is to gain status in our society, teachers must do all they can to bring about understanding and develop proper attitudes toward it. In so doing, recruitment will follow as a natural by-product of these efforts."[2]

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[1] Bender, Ralph E. "Recruitment Responsibilities," The Agricultural Education Magazine, December, 1963, pp. 150-151.

Anyone who has a passing acquaintance with vocational-technical education knows about the problem of finding qualified teachers. He also knows that there are many ways to approach a solution to the problem. There may be no best ways. Yet! There are many effective ways by which solutions may be sought to the problem of recruiting high quality teachers.

At this point, let me leave the examination of other methods of recruiting teachers to those among you who would like to search the literature and rack your brains for any innovations on the subject you may find. This is not entirely an excuse for not digging deeper into the subject, but it does permit me the luxury of spending a little more time on arguing the point in favor of placing more emphasis on the involvement of teachers in recruiting prospective teachers.

My salient point in this argument hopefully hinges on the premise that good teachers are selected and trained for their work rather than being selected after the fact, and fitted somewhat loosely into teaching positions. Seemingly the best teachers who are already teaching should realize the importance of recruiting, from among their students, prospective teachers in their fields. These teachers are strategically in a better position to accomplish this task than anyone else.

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[2] Anderson, William J. "Teacher Recruitment Program," School Shop, December, 1966, p. 34.

It is not my intention to convey that the teacher can accomplish this alone. Most often he cannot. There must be cooperation from many other sources, including fellow teachers, administrators, community leaders, educational organizations, scholarship foundations, etc. The role of the teacher in recruiting, then, is to discover the potential teacher as early as possible, and let his discovery be known both to the student and to those who should be interested in the further development of the prespective teacher he has discovered.

A major concern in recruiting teachers is the individual's intent toward teaching--what is his commitment to the profession? Is it a total commitment? Unless there is a kind of humane dedication to the teaching profession, the teacher is most likely to be shallow and ineffective. It naturally follows, then, that a good place to recruit prospective teachers is from among students who have been taught by master teachers.

Upgrading the Faculty

In all probability, the most appropriate comment that can be made under this heading, at this time, is to call attention to the final report on the "Summer Program for Updating the Technical Competency of Teachers of Industrial Subjects."

This program was conducted at San Jose State College, March 7, 1966-May 31, 1967. The project was financed by a grant from the U. S. Department of Health, Education and Welfare, Office of Education, Bureau of Research, Division of Adult and Vocational Research. Ralph C. Bohn was the principal investigator.

"The purpose of the project was to develop programs of in-service education which would upgrade teacher competency in understanding industrial materials, processes and mechanisms; and in identifying the methods whereby this new knowledge could be used to update current practices. The primary emphasis was on determining methods of providing in-service education on current information, as contrasted to providing background and supporting knowledge."

In my estimation, the program conducted at San Jose State College comes closer to approaching an ideal in-service educational program than any program reported to date. For example, the innovations and special areas of emphasis incorporated into the program seemed most appropriate in light of current needs. Note the areas of emphasis:

1. Utilization of Industrial Experiences - In the past, industry has been used in one or two ways--field trips or work experience. Too few of the predominantely Negro institutions have had the opportunity to make use of industry through field trips or work experiences.
    a. In the program, study trips were instituted. These involved half-day, full-day, or multi-day trips to industry to study the operation of particular pieces

of equipment, a particular industrial process, the controlling of automated production, etc.

b. Organized industrial work experience--this involved the rotation of teachers through various departments of industrial plants.

c. Integration of industrial schools with organized in-service education programs.

    (1) Sending the participants to appropriate industrial schools for instruction.

    (2) Bringing the industrial school on campus and conducting an integrated program of instruction.

2. Industrial Materials - The organized study of industrial materials has fallen far behind the rest of subject matter contents in industrial subjects.

3. Cybernetics and Automation - As with industrial materials, the inclusion of organized study in cybernetics and automation in industrial education at the junior college and high school levels has been very limited.

4. Integration of Subject Areas - In-service education often concentrates in one subject--or in a particular emphasis with a single subject. This program used a broader approach and brought together teachers from four broad areas of instruction: electricity/electronics, automotive and power, industrial drafting, and metals technology.

Excerpts have been taken from the report in order to give you a brief idea of what it contains. It is a voluminous, detailed report, in excess of 300 pages. Nevertheless, it may be invaluable to individuals who are seeking new ways of upgrading or updating the faculty in subject areas with special reference to occupationally oriented skills.

Undoubtedly, there is a great need for teachers in the vocational-technical areas to have an opportunity to update their knowledge. This is doubly important for teachers who have been teaching for five or more years. Changes in technology are occurring so rapidly that it is imperative for all teachers, regardless of the recency of their graduation date, to guard against becoming dated in their knowledge and skills as teachers.

Apparently, the San Jose College program offers a valid sense of direction for state departments of vocational education, technical colleges and high schools, and other interested organizations to follow in planning a meaningful program designed for the purpose of upgrading the faculty.

Here again, it is necessary to state that only one of many possible ways of upgrading the faculty has been discussed. This has been done deliberately, because the San Jose College program seems important and pertinent enough to be emphasized as an approved way of getting immediate results in faculty improvement at a high level of significance.

Developing an Adequate Faculty

It is not unreasonable to assume that the development of an adequate faculty is directly related to both recruiting and upgrading the faculty. This assumption is based on the fact that the careful selection of teachers, in the first place, provides an appropriate working basis for further development.

In the second place, this development--aside from self interest on the part of teachers--must be supported by providing them relief time for study and appropriate funds for meaningful programs designed for improving individual competencies.

If we can accept the premise that a teacher cannot teach that which he does not know, we must subscribe to the thought that teachers be assisted in acquiring fresh knowledge and in developing needed skills which are important if good teaching is to take place.

Let us briefly point out one area in which there appears to be a lack of knowledge and technical skills, insofar as the teaching of occupationally oriented skills is concerned. For the most part, teachers in subject areas demanding occupational oriented skills are not well enough acquainted with the demands of industry. This is understandable when we stop to consider that very few teachers have had the opportunity to learn about such demands. They have, in most cases, been exposed to rather inadequate learning situations outside of industry.

This apparent fact may encourage administrators to make it possible for teachers to gain first-hand experience in industry through summer employment, plant visitations, and planned workshops or institutes designed for the purpose of further developing a knowledgeable acquaintance with the demands of industry.

We suggest that if you want to explore this point further, it will be interesting to talk with some of the bright students who are participating in the cooperative-work-study programs conducted by some of the predominantly Negro colleges. Invariably, the typical instructors in these institutions are far behind the students in such programs when it comes to knowing job requirements and techniques demanded by industry. The explanation of this situation is simple: The students have come in direct contact with industry and job requirements, whereas the teachers have not.

Maybe we have gone far enough on the subject to do what was intended in the first place. It was intended that enough would be said to stimulate further discussion on the subject. Maybe this would be a good stopping place in order to allow as much time as possible for the discussion period.

UPGRADING AND DEVELOPING ADEQUATE FACULTY IN SUBJECT AREAS WITH SPECIAL REFERENCE TO OCCUPATIONAL ORIENTED SKILLS

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I hate to begin this paper on an apologetic note. I do regret the fact, however, that conflicting and urgent demands on my time and energy have prevented me from attending other sessions of the Institute and participating in the group discussions. There is no doubt in my mind that I would have learned a great deal more from that experience than you will learn from this presentation.

The first paragraph of Dr. Bell's letter to me concerning the Institute included the following guiding statement:

> Your topic for discussion is "Upgrading and Developing Adequate Faculty in the Subject Areas with Special Reference to Occupational Oriented Skills" and it is scheduled for August 3, beginning at 9:00 a.m.

Incidentally, the letter did not include a date or time for ending this paper. This is a very dangerous omission when one invites a former classroom teacher to talk with a captive group. Let me assure you that I will complete this paper in time for you to catch your planes tomorrow afternoon.

In December of 1965, I was fortunate enough to attend a South Region Conference on Education in Richmond, Virginia. It was convened by the Southern Association of Colleges and Schools. A number of Distinguished public servants, educators and citizens met to explore the theme - Education: The Southern Hope. They delineated and discussed a number of problem areas affecting the educational program of our region.

The cluster of problems identified by all or most of the conference leaders and discussion groups was:

1. Sporadic urbanization and industrialization
2. The need for equal opportunity
3. Shortage of trained educational personnel
4. The need for programs to retrain teachers and administrators
5. The need for sequential program development
6. The need for sufficient financial resources
7. The need for compensatory education
8. The need for regional planning and leadership

These problems are not new to educators in the field of vocational-technical education. You have been concerned about them for many years. One of the very encouraging features about the Richmond Conference, from my point of view, was the fact that a larger segment of leadership was brought together to focus attention on these problems.

With that background information, let us focus attention on the topic of the morning, namely, the need for retraining and/or upgrading faculty members in the subject areas that support vocational-technical education.

The position I have taken in this paper is based on the following assumptions:

1. There is a direct relationship between the available resources and the quality of its teacher education program.

2. The curricula of many small colleges and universities have been historically oriented toward teacher education.
3. Many small colleges and universities desire to improve their programs of teacher education.
4. The small college and/or university has made and can continue to make an important contribution to teacher education in the area of vocational-technical education.

The Need for Upgrading Faculty in the Subject Areas

There are certain forces at work in the United States. These forces are having and they will continue to have a profound effect upon higher education. By observing some of the changes now in process, it is possible to make an estimate of what may happen in the future, or more precisely what can happen if we will let it.

There is going to be an improvement in teaching efficiency at all levels of education. These include elementary, secondary and higher education. Some of the most satisfactory gains are now being made on the secondary level, and the very success of these programs is forcing college people to take a new look at their own personnel and instruction. In some cases, the high schools are treading on the heels of the small college or university. Although this kind of stimulation is disturbing, it is also welcome.

College teaching will gradually absorb more of the technology available to it. The use of audiotapes permits a larger number of students to gain personal experience in the exercise of spoken language. We have discovered that lectures and demonstration projects for science classes can be placed on television tapes, thus saving time, equipment and finance for the teacher and the institution. This arrangement produces an improvement in learning also.

The role of the teacher has been and will be increasingly altered. The professor whose only skill is to give information, will hopefully come to realize that there are more effective ways to communicate with the student, than by reading a lecture. The teacher of today and tomorrow must be able to demonstrate the applicability of information, to solve problems, and to translate facts into significant programs of life and action.

College teaching in the future will capitalize on the ability of the student to engage in self-instruction. Judging from what one hears about college teaching today, this approach is widely used. However, this statement does not refer to a setting where the student learns in spite of the teacher. It does refer to a setting where the student has been stimulated and encouraged to attack and solve a meaningful problem that will contribute to his development. Obviously, the use of self-directed study will be limited to students who want to learn the art of managing their own affairs and doing their own thinking.

In pointing up the need for upgrading the faculty, it should be noted that the explosion of knowledge will continue to have an impact on college teaching. A great deal has been written about the knowledge explosion of our day. It has been estimated that man's accumulative knowledge is doubling each decade. Under this set of circumstances, it is almost impossible for any specialist, regardless of how narrowly he defines his area of interest, to keep abreast with all that is being written and spoken on his subject.

To cope with current day information problems, one must cooperate with his colleagues and rely more completely than ever upon the documentation efforts of others. In addition to cooperation and the use of documented information, the teachers must engage in a program of personal and professional growth.

Some Obstacles to Faculty Development

I am speaking as a person who has some responsibility for faculty development in a small, developing institution. Therefore, I cannot ignore the problems connected with this vital enterprise. These include the following:

1. Complacency
2. Inadequate incentive
3. Heavy work loads
4. Limited resources
5. Limited and inflexible programs of graduate schools

Let us examine complacency. College teaching is one of the few professions where the practitioner has a captive clientele that cannot readily strike back. If a doctor or lawyer is incompetent he loses his cases, and his patronage turns elsewhere. In college teaching, however, there is no such immediate feedback and it is easy for a professor to assume that the full classes over which he has virtually absolute control are evidence of his effectiveness as a teacher.

Out of considerable study, research and thought emerges a well prepared lecture. It is recorded after a fashion in notes. A quarter or a year later these notes are picked out of the file ten minutes before class begins so that the lecture can be repeated. This may happen sixteen times in sixteen years. The research, reading and study of the first preparation are never repeated because the instructor has become complacent.

Unfortunately, too few small colleges and universities offer an adequate incentive to promote faculty development that will result in more effective teaching. The image of the professor is enhanced more quickly by his publications or his community and professional activity. Hence, many colleges and universities have come to grant promotions and salary increases more on the basis of research, grantsmanship and publication than on the basis of teaching. We must find a way to identify effective teaching and give it proper recognition in the academic community.

The structure of the small college or university and the diversity of the attempted offering result in heavy work loads for most faculty members. In addition to carrying heavy teaching loads, faculty members may find themselves involved in committee sessions. Here they decide through the democratic process whether pencils or chalk are to be bought with the supply money or whether driver education can be substituted for health education in a student's program. I am not opposed to committee assignments, but I do believe many of our institutions could operate just as effectively with fewer committees. The point I am attempting to make, however, is that it is not reasonable to expect a tired faculty member to become involved in a program of professional development.

Perhaps the most serious barrier to faculty upgrading in many of the small colleges and universities is the lack of funds for fellowships and scholarships. Although the situation is improving in some areas the need for additional funds is urgent.

The limited and inflexible programs of graduate schools constitute a barrier to the kind of upgrading we need in vocational-technical teacher education. I talked with a colleague recently who had taken a year of refresher training at a midwestern graduate school. I asked him to evaluate the program. He summed it up as follows: "The courses were interesting and exciting but each of them was planned primarily for the person who was going into research." This statement suggested that his experience did not provide the maximum amount of benefit for a person who planned to continue his career as a college teacher.

Proposals for Faculty Development

As we consider the proposals for faculty development, several generalizations may be pertinent:

1. The faculty must be involved in the program. Faculty development cannot be achieved by preachment or administrative degree. These may not be overtly resisted but they do not cut deep

enough to be effective. The professor, himself, must become concerned about improvement. He must generate genuine questions that he wants to answer. He must engage in experimentation on his own and exchange ideas with others. The stimulus of innovation and the satisfaction of personal achievement will come from this kind of experience.

2. Colleges and universities must develop improved techniques for appraising instruction. At present, the chief evaluation of college teaching comes from subjective rating sheets and chance remarks of students and colleagues.

When an attempt is made to reward professors for their teaching, administrative officers are baffled because the criteria of good teaching are not clear. One promising approach to this problem is to reward the teacher not only for the quality of his teaching but also for his effort to improve. Under this plan, the teacher discusses with his department head or dean the kind of new teaching practice that he wants to try. At the end of the experiment, he makes a careful appraisal of results and reports his findings. This kind of activity is open and observable; it is capable of analysis and appraisal. On this basis there can be some confident judgment when one attempts to evaluate and recognize effective teaching.

3. Colleges and universities must encourage and support faculty development. As Edward Eddy pointed out in his volume on The College Influence on Student Character, academic people tend to rise to the expectations set for them. If the campus

climate is such that good teaching and faculty development are respected and rewarded, professors will tend to respond accordingly.

The administration can show its support by encouraging innovation in teaching, by providing funds for travel to professional meetings and workshops, by reducing the teaching loads of those engaged in instructional experimentation and by publicizing the efforts of faculty members to grow professionally.

Regretfully I am not prepared to suggest any "space age" approaches for upgrading and developing faculty members in subject areas. I believe, however, that we can make effective use of some of the approaches that are serving other disciplines.

For example, we could increase the number of state and regional conferences with faculty members from the technical or subject matter departments of small colleges and universities. These conferences might focus on such problems as:

1. The selection and organization of subject matter
2. The reassessment and identification of new objectives in vocational-technical education
3. The improvement of cooperative relations between members of the professional and technical staff
4. The selection and use of teaching aids and materials
5. The development of teaching materials
6. The refinement of evaluation procedures

This list of problems is not exhaustive but it does suggest some problem areas that could be considered in joint conferences.

A second approach for upgrading faculty members in subject matter areas is the institute. The National Science Foundation and the Department of Health, Education and Welfare are currently underwriting institutes for teaching personnel at all levels in the natural sciences, languages and reading. These institutes are operated during the regular academic year and the summer terms.

Perhaps a subcommittee from this conference could develop a proposal and explore the possibility of getting an institute funded in agricultural business, clothing, textiles and related arts or general business practices.

Although we recognize the need and importance of in-service training, many of our colleagues do not. Therefore, we must take the initiative in this matter.

A third approach might involve faculty exchange. A number of the small colleges and universities in the South have developed cooperative programs with some of the large universities in the region and the United States.

It may be possible, in some situations, for faculty members from the small colleges and universities to go to these universities for the purpose of upgrading themselves in short-term programs of instruction and research. In the meantime, the major institution could send a faculty member to the small college or university to carry his teaching load.

Finally, there is the approach through graduate study. As I pointed out earlier, the offerings of some graduate schools would require modification to meet the needs of persons who plan to continue as college teachers.

As many of you know, some institutions have modified certain graduate programs to prepare and/or upgrade college teachers. A few weeks ago I received a preliminary announcement from a university in this region calling attention to a faculty development program in science. Its primary objective will be to upgrade teaching personnel from small colleges and universities.

There are opportunities for upgrading the technical faculty, but you as leaders in vocational-technical education must find them and relate them to this vital problem.

Let me close this presentation with a quotation from an address delivered before 49th Annual Meeting of the American Council on Education by Dr. O. Meredith Wilson, President of the University of Minnesota. Dr. Wilson has pointed up the scope and the sense of urgency surrounding this problem far more eloquently than I can. I quote:

> However rich the cultural heritage may be, each new child must start from the beginning--an exciting, lovable, vulnerable, innocent and uninformed, helpless bundle of biochemistry. And each must make the full journey from complete ignorance to knowledge. For him as an individual, the richness of our culture may mean that it is more promising, more exciting, more worthwhile to make the journey from ignorance to knowledge. But it also means that he has farther to travel. This late twentieth-century society has done wonders in matters of travel. We can go places men never dreamed of going, at speeds unheard of before, and in comfort and security that, in the language of my own college senior, "boggles the imagination." We have improved the speed, the comfort and the security on almost every other road. But for the road from ignorance to knowledge, we have little more help to offer than was available after man first mastered the art of writing. We have extended the length of the educational road, increased the time required for the journey, perhaps enriched the scenery available on the way. But each new child of the twentieth century sets out

to make the trip psychologically as alone and technically as ill-equipped as was Alexander, son of Philip; and we provide him as guides, teachers no better equipped with technical mastery of the art of teaching than was Aristotle. I wish we could be sure that in thoughtfulness and dedication they would be as good.[1]

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[1] Wilson, Meredith O., Teach Me and I will Hold my Tongue. Remarks prepared for delivery at 49th Annual Meeting, American Council on Education.

THE ROLE OF NEW MEDIA IN TEACHER EDUCATION

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During the past few years teacher educators have been forced to reevaluate their basic assumptions regarding pre-service training of teachers. This reevaluation has been precipitated by specific and general discontent among teacher educators who agree that "it will not suffice for teacher education to be just a little better or just a little different; it must become fundamentally different and radically more effective."[1] In addition, it is probable that such critical reviewers as Dr. James Conant have provided a great impetus and focus for action in an area which has long needed reexamination.

Many attempts at innovation in teacher education programs have accompanied this reevaluation process. The broader and more creative use of new media represents but one such innovation. However, much of the credit for innovation in new media must go to the TEAM Project or the Teacher Education and Media Project which is attempting to "improve the professional sequence in pre-service teacher education through the selective and planned use of new media."[2] The cognitively oriented TEAM

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[1] A. D. Woodruff, "Implications for Institutional Action: TEAM Project," American Association of College Teachers Education Yearbook, 1965, p. 230.

[2] AACTE, A Dissemination Report of the Survey of Institutional Activities Related to the Curriculum and Media Aspects of the Teacher Education and Media (TEAM) Project, February, 1966, Introduction.

Proposal presents a conceptual structure and systematic pattern of teacher education which includes five major curriculum areas. Having clearly defined the purposes and content of the professional sequence, they believe that it is then possible to make appropriate and effective use of media.[3] The Team Project encourages extensive laboratory work, "carefully selected and controlled direct and simulated experiences," and the development of competent identifiable teacher behaviors prior to the student teaching experience.[4] The new media can help provide observation experiences which will aid the analytical study of teaching or be used as tools in simulation techniques. Specific teaching competencies developed in micro-teaching can be evaluated through the use of new media.

Within the scope of this paper, I shall discuss some of the current applications of new media to teacher education in the areas of observation, evaluation, and simulation, and the implications for future research and development resulting from these experiences.

Before continuing, it would probably be desirable to clarify the term "new media." Within the new media I shall include such tools as 8-mm and 16-mm film, slides, filmstrips, television, kinescope, and audio and visual tapes. With the possible exception of television, these media are capable of recording and preserving material for future as well as immediate viewing and/or listening. This material can then be used selectively to enrich or serve as the basis of course content, and to enhance observation and evaluation processes.

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[3] Ibid., Introduction.

[4] H. F. LaGrone, "Teaching: Craft or Intellectual Process? The Team Project Approach," American Association of College Teachers Education Yearbook, 1965, p. 227.

LaGrone contends that the new media provide a new and different approach to the study of teaching and the teacher education curriculum. He cites several specific advantages of the new media over traditional techniques. First, they extend human capacities for observation. "Deficiencies of recall and interpretation are minimized by authenticity, reproductivity, and simplification."[5] Second, they provide new content by removing the limitations of time, space, and distance. Third, the new media make it possible to interrelate existing content. Fourth, the wide variety of realistic techniques increase learning potential.

In order to best illustrate these advantages, I shall begin by discussing some specific examples of new media application to observation opportunities in teacher education programs. Marygrove College in Detroit, Michigan, was confronted with the problem of inadequate resources for direct observation by their students. In order to provide observations of classroom procedures in a variety of subjects and a variety of situations, they developed a series of audio-tape recordings with synchronized slides.[6] Although they might have preferred using video-tape, television, or sound film to achieve this purpose, their limitations in budget prevented them from considering any of these costly examples and instead caused them to focus upon the possibilities of audio-slide sequences. Not only do these sequences increase the scope of their observation program, but they also make it possible for the instructor, who is now aware of what his students will see, to direct their observation to key points and to facilitate their understanding by stopping the program at any time when discussion might be profitable. All of the students can be exposed to the same experiences through indirect observation, which is not possible using direct individual observations. In addition, time normally spent in travel and inconvenience can now be devoted to focusing upon a larger range of recorded observations. Furthermore, it should be emphasized that the necessarily chance variables regarding quality and scope of direct observation are no longer present. These recorded observations have a demonstrated value. In addition, these recordings can be employed in a variety of ways from required class observation to independent or supplemental use. Certainly some of the advantages of the new media can be seen through this example of audio-slide sequences. While other institutions recognize these same advantages, they may employ different media to help achieve their purposes.

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[5] Ibid., p. 226.

[6] Sister Gilmary, IHM Marygrove College, "Future Teachers Learn from Low-Cost Methods," Educational Screen and Audiovisual Guide, September, 1965, pp. 24-25.

Some institutions such as Marywood College in Pennsylvania have used video recordings of classroom observation experiences to provide a common background for the discussion and development of proper techniques of observing and reporting.[7] Ohio University developed the Putnam Project using live television or videotape as the basis of classroom observations in order to provide greater freedom and diversity of presentation.[8] After a ten-minute background presentation, a 30-minute televised production is shown, followed by a discussion and evaluation session. The goal of the program is to improve evaluation and instructional techniques.

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[7] W. E. Engbretson, "Creative Programs in Teacher Education," NEA Journal, December, 1966, pp. 45-47.

Some institutions, such as San Jose State, use closed circuit television to facilitate classroom observation. Certainly television makes it possible for a larger audience to participate in a directed, common experience. However, if the productions are not recorded for future as well as immediate viewing, there are fewer advantages for employing this media.

Still another type of innovation has been tried at Northern Illinois University where their three laboratory schools have been connected to their educational facilities via closed television making it possible for teacher trainees to view and discuss live broadcasts, or previously prepared tapes.[9]

Stanford University has also attempted to facilitate observation experiences by making video-tape recordings of experienced teachers. However, since these tapes are used in their intern program, "each video tape presents an experiences teacher demonstrating a specific technical skill of teaching."[10] Each model tape is produced in a constructed micro-class situation which contains only a few students. Because of the specific nature of the program, only short, highly focused tapes demonstrating identified technical skills are made. This therefore reduces the costs of production. Interns view these model tapes and then practice the skill they have seen demonstrated on video tape.

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[8] J. R. Boone and R. A. Hauser, "Teaching to Teach through TV; Putnam Project," Education Digest, March, 1966, pp. 41-43.

[9] AACTE. op. cit., p. 8-9.

[10] Frederick J. McDonald et. al. Televised Models for Teacher Training, Stanford University.

Northern Michigan University in Marquette has also developed a series of video-tape demonstrations which are planned to accomplish a specific purpose and are evaluated in terms of this objective, before use.[11]

These represent but a few examples of how the new media can help to provide a more efficient system of classroom observation.

Another role of the new media in teacher education falls into the realm of evaluation. By employing recording media, both supervisors and student teachers are better able to evaluate teaching performance. Supervisors no longer have to rely on notes and memory to emphasize their points. Instead, they can refer to a recording and systematically evaluate the strong and weak points of a teacher-candidate. They can stop the recording at any time in order to make appropriate comments. At the same time, the student teacher can objectively view her performance, thereby reducing the inadequacies of perception caused by poor memory and partial focusing upon key issues. Furthermore, if practice observations can be recorded, the supervisor need no longer make direct visits to the classrooms of his advisees and can therefore make more efficient use of his time.

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[11] AACTE. _op_. _cit_., p. 8.

Many types of media can be used for recording purposes. For example, kinescope film can be used instead of a personal classroom visit.[12] It is also possible to use an 8-mm magnetic sound camera or an 8-mm silent film and tape recorder in order to preserve the practice teaching observation.[13]

Stanford University employs video-tape recordings for immediate feedback and evaluation in its summer micro-teaching clinic. Again, emphasis is placed upon developing a certain number of technical teaching skills. Each skill is introduced during a one-hour instructional session. The interns plan a short 5-25 minute lesson which attempts to incorporate the technical skill being concentrated upon. Lessons are presented and recorded in the micro-teaching situation. Students immediately view their performance with their supervisor, critique it, take a short break, and reteach the same lesson, hopefully having made appropriate changes on the basis of earlier criticism.[14]

Video recordings are made not only during the summer micro-teaching

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[12] H. Harap, "Review of Recent Developments in Teacher Education," Journal of Teacher Education, Spring, 1967, p. 13.

[13] Rosco Wright and John R. Cumming, "'8' in Student Teacher Education and Evaluation," Audio-Visual Instruction, February, 1966, pp. 100-102.

[14] James M. Cooper and Thomas Stroud, The Stanford Summer Micro-Teaching Clinic, 1966, Stanford University.

clinic, but throughout the intern year. Portable recorders follow the intern into the classroom 10 to 20 times during the school year; each time, a 20-minute segment of classroom performance is recorded. These recordings provide the supervisor and intern with a basis for continual evaluation.[15]

Stanford University has also used 35-mm time-lapse photography as an aid to teacher evaluation. In this process, timed photographs of a given class record the visual attending behavior of students during a class period.[16] Thus, it is possible for the intern and supervisor to study these photographs at a later time in order to evaluate the kind of attention the intern is receiving from his students. Again, these photographs provide not only feedback on teaching performance, but direct evidence for discussion and evaluation between the supervisor and intern.

The new media are also being used as tools in simulation programs which are developing in institutions across the country. These programs attempt to unite theory and practice, or foundational and instrumental experience, and provide students with an opportunity for practicing a wide range of teaching behavior. Life-like situations or incidents which permit learners to apply theoretical analysis are created.

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[15] Dwight W. Allen et al., Television Recordings: A New Dimension in Teacher Education, Stanford University.

[16] W. V. Fanslow, Stanford Studies of Attending Behavior, Stanford University.

The Longacre School Project developed by Donald R. Cruickshank and his associates at the University of Tennessee is but one example. Cruickshank has defined simulation as the "creation of realistic games to be played by participants in order to provide them with lifelike problem-solving experiences related to their present or future work."[17] In the Longacre Project, the participants or players assume the role of Pat Taylor, a beginning fifth grade teacher. After the participants are oriented to the situation, they encounter 31 representative critical teaching problems of beginning teachers. Included are problems falling under the broad topics of student behavior, relationships with parents, individualizing instruction, locating instructional materials, and evaluation and motivation.[18] Ten of the problems are presented on film. The rest are presented through written incidents or role play. After each incident is presented, the participant identifies the problem, identifies the forces and factors affecting the problem environment, locates pertinent information, projects possible alternative courses of action, and communicates and implements a decision.[19] After individual participants have reacted, they move into small groups of four and try to project a group reaction. Later, a large group session will explore the issue.

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[17] D. R. Cruickshank, "Simulation: New Director in Teacher Preparation," Phi Delta Kappan, September, 1966, p. 23.

[18] Donald R. Cruickshank, The Longacre School: A Simulated Laboratory for the Study of Teaching, the University of Tennessee, 1967, p. 1.

[19] Ibid., p. 7.

Another type of classroom simulation has been tried at the Michigan State University to "provide teacher-trainees with experience in identifying and solving classroom problems prior to their actual student teaching."[20] An actual simulated classroom is provided including cumulative records for students, a short description of the school and community, and an orientation film showing the teacher in the class. Sixty filmed problem sequences are divided into three sets of 20 films each. The total program is three days in length. Printed instructional sheets for each of the sixty problems provide a description of the situation, the problem, principles for solving the problem, and the feedback description. The problem sequences deal with five types of common classroom behavior such as inattention, baiting and testing, disorderly conduct, distracting behavior, and fatigue. Each student is presented with the problem in the simulated classroom on an individual basis. He is then required to identify the problem and react physically and verbally to the problem as if he were in a real classroom. Depending on his response, he is shown a feedback sequence of the possible class reaction. The problem and feedback are presented repeatedly until the "student elicits a desirable response based upon preestablished standards."[21] After choosing the correct response, the student is encouraged to develop a principle which can be applied to solving similar problems. If a participant elicits the correct response immediately, he must then discuss some ineffective reactions and see feedback on these so that the correct response will be impressed.

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[20] Charles Vlcek, "Classroom Simulation in Teacher Education," Audio-Visual Instruction, February, 1966, p. 86.

[21] Ibid., p. 88.

As can be seen, the Michigan State Project encourages students to try different techniques in an effort to discover and develop classroom behavior. However, one correct response is emphasized. Cruickshank's project involves less total individual interaction with a problem, but provides for a much broader range of alternative possible responses. However, while Michigan State's problems are very specific in nature, Cruickshank's are of a much more general character.

Despite the extensive use of the new media in teacher education, and the advantages for its use, there is little research to substantiate its effectiveness. As Schueler and Lesser continually point out, "rigorour empirical research on applications of new media in teacher education is scarce, and existing studies are primarily recent."[22] Thus, there is little replication.

Instead of objective assessment, "the literature on media use in teacher education is more often composed of testimonials for its use than reports of empirical evidence regarding its effectiveness."[23] Undoubtedly these testimonials only reflect the early phase of a developing field and an attempt to justify and defend the purchase of expensive equipment whose value has not yet been demonstrated.[24]

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[22] Herbert Schueler and Gerald S. Lesser, Teacher Education and the New Media, AACTE, Washington, D. C., 1967, p. 37.

[23] Herbert Schueler and Gerald S. Lesser, "New Media Research in Teacher Education," Audio-Visual Communication Review, Fall, 1966, p. 326.

The failure to deal with the inherent complexity of functional characteristics of both the teacher education process and the new media is another deficiency of media research. Variables are not treated systematically. Further, theory is not applied systematically.

Media research, to date, has revealed few significant findings. At the same time, there is an absence of negative results which is probably attributable to the hesitancy to publish such findings. Therefore, the most prevalent feature of media research is the quantity of research yielding statistically nonsignificant differences. In other words, the research shows that devices compared are of equal effectiveness and that all media studied are effective instructional devices.[25] Furthermore, when statistics yield nonsignificant differences, experimenters will tend to provide their own subjective impressions or the subjective impressions of their participants.

For example, a Hunter College study tried to compare the effects of using direct observation, closed circuit television, and prepared kinescopes in providing observation and demonstration material for an elementary education methods course.[26] There were no significant differences between the three groups on the basis of a measure of their information about methods. However, in an essay exam "assessing ability to critically evaluate an observed classroom lesson," the kinescope group came out on top, followed by the live television group, and then the direct observation group.[27] Furthermore, although there were no observable differences in the teaching performances of the three groups, it was noted that students who had had the television recordings or kinescopes felt they had advantage for improving their teaching.[28] This study seems representative in that the results are nonsignificant, but there is great effort to make the study more significant through subjective means.

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[24] Schueler and Lesser, AACTE, p. 92.

[25] *Ibid.*, p. 42.

Another study at Hunter College attempted to test the usefulness of kinescope recordings as the basis of supervisor observations of student teachers. Again, no significant differences were found, but student teachers and supervisors supported the use of kinescope.[29]

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[26] Nathan Stoller and Gerald Lesser, "The Use of Television for Improving Teacher Training and for Improving Measures of Student-Teaching Performance: Phase II. A Comparison of Methods of Observations in Pre-Service Teacher Training," Audio Visual Communication Review, Winter, 1964, p. 493.

[27] *Ibid.*, p. 493.

[28] Elizabeth Hunter and Edmund Amidon, "Direct Experience in Teacher Education: Innovation and Experimentation," Journal of Teacher Education, Fall, 1966, pp. 282-289.

[29] Herbert Schueler et al., "The Use of Television for Improving Teacher Training and for Improving Measures of Student-Teaching Performance: Phase 1. Improvement of Student Teaching," Audio Visual Communication Review, Winter, 1964.

A study at the University of California, Los Angeles, tried to assess the value of video tapes on specific teaching principles. Three groups were compared. All viewed the video tapes, but one group received no accompanying instruction, another received brief instruction, and the third group received more intensive instruction. In a written post-test requiring the identification of principles in instructional situations, there were no significant differences between the three groups, although this is attributed to a low ceiling on the test. However, the instructed video tape group did better on post-tests in applying principles. Considering the fact that they had the most instruction, this result would seem reasonable.

The effectiveness of classroom simulation techniques is still undetermined. Cruickshank's only supportive data comes from two field tests. Students who had participated in the simulator training felt that it was very enjoyable and helpful, realistic, more meaningful than college lectures, and more valuable to them than the two weeks of student teaching they had missed. In addition, they felt they had been involved in the situation, that the small group discussions were helpful in developing their own concepts of teaching, and that the simulator methods were helpful in developing methods of coping with classroom behavior problems.[30]

At Michigan State a study was conducted comparing an experimental group who had received simulator training with a control group who had not received this training. In a post-test students were required to assess a problem, respond to the problem, and apply principles to solve the problem. It was concluded that the experimental group performed significantly better than the control group. Although both groups could identify the problems, the experimental group was better at solving problems and being aware of the principles to use. However, in a transfer test during the fifth week of student teaching, both groups were equally aware of problems and equally effective in dealing with them. Both groups applied an equal number of principles with effective results, "but the experimental group applied a greater number of principles with ineffective results."[31] Still, it was concluded that the experimental group was more effective than the control group. This conclusion leaves some room for question.

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[30] Cruickshank, Longacre, p. 8.

Much of the justification for simulation rests in testimony. Kersh contends that simulation students are ready to assume full responsibility during student teaching up to three weeks earlier than non-simulation candidates. Vlcek believes simulation increases participants confidence in their ability to teach. Weinberger says that participants felt "their behavior on the job was modified positively as a result of the simulation experience."[32]

Cruickshank justifies simulation in many ways. He believes participants find simulation stimulating and highly motivating. Simulation provides an opportunity to "encounter and play out instructional problems much earlier than they normally would be encountered and in a much shorter time span."[33] Participants are allowed to practice different principles without suffering punishment. In addition, simulation provides an opportunity to become meaningfully acquainted with school records, regulations and children. Furthermore, by engaging in problem-solving activities, the number and intensity of first year teaching problems may be reduced.[34]

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[31] Vlcek, op. cit., p. 90.

[32] Cruickshank, Phi Delta Kappan, pp. 23-24.

Although the new media provide many tools which can be applied to teacher education programs, the effectiveness of these tools has not yet been proven. As Schueler and Lesser note, the "possibilities for new media in teacher education have neither been verified through research and experimentation nor yet had sufficient study for proper conclusions and applications to be drawn."[35] Media research is still too uncertain and undefined, and too unstable in scope, quality, and function to provide a sound basis for widespread applications in practice.[36]

Furthermore, it may be that the new media have their greatest ultimate effect in teacher education by furthering fundamental research in "establishing clearer, more commonly-accepted and applicable standards of teaching performance," and "conducting basic research into teaching and learning processes which underlie teacher education."[37]

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[33] Ibid., p. 24.

[34] Ibid., p. 24.

[35] Schueler and Lesser, AACTE, p. 91.

[36] Ibid., p. 94.

[37] Ibid., p. 94.

At the present time there are no panaceas in teacher education. The new media represent a group of tools which can be used as sources of innovation. However, the new media cannot be regarded as the sole means to improved teacher education programs. It is the responsibility of the particular training institution to determine the goals of its program and to employ those media which seem to best fit its needs. Therefore, the institution will have to consider the problems of finance, staff, and facility. What is feasible for Stanford University may not be feasible for Marygrove College. However, it seems that any discussion of possible teacher education innovations should include consideration of the new media. It hardly seems necessary to dismiss, on the basis of inadequate research, the value of recording human experience. The new media require a place in any teacher education curriculum, but it is necessary for the particular institution to determine the most desirable type of media and the role this media will have.

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SUMMARY REPORT OF SEMINAR SESSIONS CONDUCTED DURING THE INSTITUTE

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North Carolina State University at Raleigh

Purposes

On the first day of the Intitute the critical importance of the seminars was stressed. They were held to be essential in (1) dealing with the special interests and problems of participants, (2) sorting, revising, and assimilating concepts suggested by the forenoon speakers, and (3) developing feasible action programs which could be promoted in the institutions represented.

It was suggested that the seminars deal broadly with the occupational education in their institutions, encompassing all that is done to contribute to occupational choice, competence, and advancement. Such a concept would include contributions to the basic education required for occupational success, occupational counseling, the practical arts, vocational education, technical education, and education for the professions. With this concept, nearly everyone in a small college would find himself involved in some way in occupational education.

The seminars were encouraged to give special attention to defining the responsibilities in occupational education of their institutions and to organizing these institutions to make their maximum contributions.

Organization and Procedures

Three seminar groups were organized. Members were assigned to each group at a meeting of the group leaders prior to the Institute. There was an attempt to balance the groups, placing in each group persons from several fields within occupational education and scattering the more articulate members among the three groups.

Group leaders were C. E. Dean, Professor Emeritus of Agricultural Education, A & T State University, Dr. C. W. Pinckney, Head, Department of Industrial Education, A & T State University, and Dr. Charles H. Rogers, Coordinator, Services and Conferences, Center for Occupational Education, North Carolina State University at Raleigh. Dr. H. M. Hamlin, Consultant, Center for Occupational Education, North Carolina State University at Raleigh, served as coordinator of the seminar.

The forenoon speaker visited each seminar during the afternoon and submitted to questioning. Each seminar reported daily to the entire Institute. Toward the end of the Institute, each individual gave his seminar leader a summary of the seminar in which he had participated, suggesting applications that could be made in his institution of ideas gained. The individual reactions were summarized by the group leaders and reported to the Institute.

A library on occupational education was conveniently available.

At the first meeting of each seminar there was a canvass of the interests and problems of each participant. Each seminar meeting included a critical discussion of the talk heard during the forenoon preceding. Each seminar dealt in some fashion with a list of "critical issues," distributed at the beginning of the Institute.[1]

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[1] Included in the Appendix of this report.

A list of definitions of terms likely to be used in the Institute was distributed to participants.[2]

Conclusions Tentatively Reached in the Seminars

A digest of the conclusions and recommendations of the seminar groups follows. Unanimous concurrence is not implied. The list has been compiled from the reports of participants and group leaders with interpretation by the coordinator, who shared to some extent in all seminars.

1. The small colleges should recognize that they are an important source of personnel for occupational education, perhaps the most important source. They should also be aware of the great and growing shortage of personnel for occupational education of many types and should not confine their interest to the preparation of teachers.
2. The forces engaged in occupational education in each small college should be marshalled to determine the mission of the institution in that field, to study the current program, and to suggest needed changes.
3. The current policy for occupational education in each institution should be codified, made available to those affected by it, and reviewed and supplemented by those responsible for it.
4. Small colleges should prize their autonomy, recognize the responsibility for independent action which accompanies it,

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[2] Also included in the Appendix

and avoid becoming unduly dependent upon programs and authority imposed from outside them.

5. All of the useful resources of an institution should be employed in strengthening occupational education including the contributions of sociology, economics, political science, and psychology.
6. Resources outside the academic community should be used to vitalize college programs and improve a college's articulation with its environment. Resources available to occupational educators include those of business, industry, and employment services.
7. Consulting (advisory) committees of lay citizens, authorized by the trustees or the central administration and set up under carefully designed policies, may well be used in planning and revising institutional policies and programs for occupational education.
8. Individual consultants from many sources may be useful in redesigning institutional policies and programs in occupational education.
9. Contacts should be maintained with state, regional, and national agencies involved in occupational education to secure from them the information needed in planning institutional programs and the funds that may be used appropriately in developing programs.

10. Small colleges should overcome the lag which has developed from adhering too closely to the organization and the traditions stimulated by the Smith-Hughes Act. Advantage should be taken of the broader provisions of the Vocational Education Act of 1963. However, the organization and the programs of the small colleges should not be influenced unduly by federal legislation. State and institutional funds should be used to supplement funds available for federally-aided programs in fulfilling the missions of these institutions in occupational education.

11. Working relationships between the smaller and the larger institutions for higher education, advantageous to both, should be developed, which would result in providing more adequate personnel for occupational education, broadened programs of research and development, and other advantages.

12. Research and development within their capabilities are proper and essential activities of the small colleges. Priority belongs to the research and development intended to assist in improving the services of the institutions making the studies. Funds for small-project research, available from the U. S. Office of Education, should be used. Time in adequate blocks should be allocated to those expected to contribute to research.

13. The research capabilities of interested members of small-college staffs should be nourished and opportunities should

be provided for their further development. Each institution needs a director or coordinator of research familiar with the sources of funds and the means of securing them.

14. Small colleges should recognize and capitalize upon their special advantages: a less rigid structure, easier means of communication among staff members, and closer student-faculty relationships.
15. In organizing to increase the contributions to occupational education of the small colleges consideration should be given to:
    a. Consolidation of separate vocational departments and emphasis upon their common rather than their differing objectives;
    b. Institutional and state-wide organizations of persons engaged in occupational education in higher institutions.
16. Members of small-college staffs should make themselves effective in influencing opinion through writing, speaking, and "lobbying."
17. The resources available for occupational education (personnel, funds, facilities) in a small college should be inventoried and requests should be made effectively for the resources needed.
18. Educative work experience is required by many prospective occupational educators. Institutions should arrange to provide it in cooperation with business and industry.

19. Consolidation of some courses offered in the various vocational departments and team teaching by members of specialized staffs should be encouraged.

20. Reduction in the number of existing courses could make possible new courses and free time for responsibilities other than teaching.

21. The occupational progress of former students should be studied systematically. Implications from their experiences should be reflected in curriculum changes.

22. Small colleges may well cooperate with the local and area schools in their territories in pilot programs designed to improve occupational education.

23. The relationships of the small colleges and the area schools should be explored and improved.

24. Students should be made familiar with the wide range of occupations open to them and to those they will teach in the local and area schools. They should know the requirements of new occupations that are appearing and be aware of the obsolescence of some occupations.

25. There is inadequate personal contact and insufficient interchange of information among the workers in the several special fields within occupational education.

26. The in-service education of personnel in occupational education is a responsibility comparable to its pre-service education, which the small colleges should share under a rational and fair

agreement with the larger colleges and universities and the state departments of education. Many vocational teachers now in service need contacts with modern industry and business.

27. The small colleges, like the larger ones, have a public-service function in occupational education which involves assistance to the local and area schools and their governing boards in devising policies and programs, planning curricula, providing teaching aids, and designing facilities.
28. More attention should be given to the evaluation of the policies and programs of small colleges and their effects upon students. Arrangements for continuing evaluation, rather than sporadic evaluations, are needed.
29. Flexibility should be built into the occupational programs of the colleges to provide for individual differences. More options should be available to students than they currently have.
30. Undergraduate students may well be inducted into independent study which, for some, may be the introduction to research. Careers in research in occupational education are opening for which some should be prepared.
31. The small colleges may secure assistance in research and development from the research coordinating units in their states, the district offices of the U. S. Office of Education, and the Center for Occupational Education at North Carolina State University.

32. Graduate study by faculty members in occupational education should be encouraged and facilitated by their institutions.
33. There is doubt about the desirability of providing graduate work in the small colleges represented in the Institute.
34. Each small college must have an organized and financed "recruitment" program which provides without bias sound information about the opportunities it has to offer.
35. Members of small colleges faculties must learn to relate themselves to the policy bodies for their institutions, find ways of securing from them the attention occupational education deserves, and provide for them the information they need in decisions about occupational education.

Supplementary Statement by Coordinator of Seminars

At the concluding session of the Institute the coordinator of seminars made the following supplementary comments.

The small colleges represented in the Institute are primarily concerned with occupational education. Their special field is education for the professions. The educational professions provide the chief outlets for their graduates. They have not always recognized the great opportunities for their students as professionals in occupational education.

The range of opportunities in occupational education is wide. Students should be aware of the opportunities for promotion from the first positions they accept and the necessity, in most cases, of attending a larger institution to prepare for the better positions in the field.

They should also know the opportunities to transfer from occupational education in the schools to desirable positions in business, industry, and government. We should never talk to our students only in terms of the first jobs available to them.

The profession of education is still one of the best open to Negroes. Don't sell it short.

Although some small colleges may justifiably continue non-degree programs preparing for certain technical fields, we may expect that responsibility for them will gradually be sloughed off. They should share increasingly in the preparation of technical teachers for the area schools.

You should be more aware of the area schools than you have been in this Institute. Although barriers to transfer from them to your institutions have been erected, you may expect that these will be lowered and that area schools will become a leading source of transfer students. In Florida, about three-fourths of the entering students in the larger institutions enter from junior colleges. The area schools are good places to which to send those who do not belong, and probably will not succeed, in your institutions. Located midway between the local schools and the colleges, they are destined to have important effects upon both. The development of area schools, now rapidly becoming almost universal, is the most important educational development underway in the United States. Your influence is needed to see that Negroes have access to them on the same terms as others and that they understand what these schools can do for them. Don't regard the area schools as dangerous rivals. The principle is that any kind of good education helps every other kind.

I hope that, when you go home, you will not confine your efforts to doing better what you are already attempting to do, as some of you have indicated you will. In this dynamic world it may be best to quit some of the things you are doing and do something else.

I have not detected in the seminars a sufficient awareness of citizen control of public education. This is not surprising since Negroes have not participated very much in it, but I wonder why you do not use more your new voting privileges and your recently acquired political power to influence school affairs. The neglect is striking in view of the pronouncements of your leaders that better education is your chief hope. It is especially necessary to your people in taking advantage of the new job opportunities open to them.

We need mechanisms whereby citizens may express themselves more effectively and more rationally about public education. Citizens consulting committees, advisory to boards of education, are a major means. Don't confine these committees to advising teachers; get them into the recommendation of public policy.

You should be concerned about occupational education in the elementary schools and the junior high schools. Occupations and education which prepares for occupations are often chosen before the senior high school is reached. Parental influences upon the choices of young pupils are often strong--and ignorant. You can help. Don't overlook occupational information and guidance as critical parts of occupational education.

You also need to be more concerned about adult occupational education than you have been in this Institute. Adults constitute the largest part of the potential clientele of occupational education. The possibilities are indicated by the provision of Corpus Christi, Texas, in 1963, of 80 classes for adults in distributive education alone. We can't possibly educate completely in childhood and youth for a dynamic world of work. Your students should be equipped to work with adults as well as youngsters.

I am not implying that you can be all things to all men. Select a limited and feasible field of work and cultivate it. Fit into the program of your institution but also fit your program with those conducted in other institutions.

Search for talent adapted to occupational education and guide its development in your institution and other institutions.

Help in providing work experience for youth: perhaps a fatal missing ingredient in the rearing of modern, urban youth. Stress the effects of work upon personality, associates, social standing, and personal satisfaction.

Start building libraries on occupational education, now sadly lacking, and develop them with the steadily increasing flow of new publications in the field.

Stand for a balance between general and occupational education and recognize the contributions "general education" makes to occupational choice, competency, and advancement. Most employers' ratings put as first requirements the ability to live and work with others and the ability to communicate orally and in writing, which are joint contributions to general and vocational education.

Don't underestimate the possibility of long-range planning even a rapidly changing environment. Why did Milwaukee and Joliet establish area schools in 1902 when most other areas have only recently seen the need for them?

We must turn out teachers and counselors aware of the facts of migration and its implications for occupational choice and training. Guided migration would take into account the opportunities for vocational and technical education in the areas to which our students might migrate.

Don't spend your precious lives meeting requirements for accreditation, graduation, teacher certification, and federal aid. Develop the needed programs and get them approved. It's easier than you think. Almost every agency is encouraging innovation, but is discouraged by the lack of it.

Some have said that we have had the wrong group here, that we should have had the policy-makers and administrators. I don't agree, but I recognize that those who are here will have to get through to the power structures in your institutions. I believe that those in these structures can be reached with a broad and modern concept of occupational education although they cannot be made much interested in any specialized and narrow field. I know that some of you will one day be in the power structure if you are not in it now. And I hope that one day we shall bring together some of the persons currently in it.

Don't feel that the whole weight of occupational education is on your shoulders. It is a mammoth undertaking, largely private. Private expenditures for it have been estimated at $13 to $19 billion annually. Besides this, the $400 million of federal aid for vocational education or even the $2 to $3 million of local, state, and federal money spent for it looks puny.

Although private undertakings now dominate the field, we may expect that responsibility for occupational education will be shifted increasingly to public agencies and that they will be expected to do their work better than they have done it.

I hope you can assist the local elementary and high schools in rethinking their roles in occupational education. There is much that they could do well that they have never done, but they would be wise to shift to other agencies some of the responsibilities to which they now give at least "lip service." You can help in articulating the roles in occupational education of the various public agencies, now operating almost independently in an "educational jungle."

Never underestimate your importance in the total scheme of things. What you do in your institution could have lasting and widespread effects. Every good movement starts somewhere. Why don't you start one? Never was the opportunity for it to spread so good.

We at the Center will be interested in what you do. We may be able to help you. We can certainly aid in disseminating the results of your experiences.

We have had tremendous change in my lifetime. The whole field of public occupational education has developed during it. And probably "we ain't seen nothin' yet." But change does not always make for human progress. Keep your critical minds and sort the innovations, keeping central in your minds the total welfare of individual human beings.

An Evaluation of the Seminars by Their Coordinator

The seminars were marked by steadily rising interest. Participation in the discussions was general. There was browth toward a broader conception of occupational education on the part of persons accustomed to specializing in limited fields. The contributions of the visiting speakers were constructively analyzed in a sincere attempt to find ideas and practices applicable in the colleges represented. In some cases the search was almost futile. The greatest impression upon the seminar groups was apparently made by a speaker who related concretely and in some detail important developments in which he had shared. His contribution was a balanced combination of theory (or principle) and practice.

The participants labor under severe handicaps in their institutions and perhaps accept these handicaps too patiently. These institutions need help in developing their contributions to occupational education. The Center for Occupational Education at North Carolina State University has pledged such help as it can give.

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APPENDICES

APPENDIX A

PROGRAM

Monday, July 24

FIRST GENERAL SESSION

9:00-12:00 Noon

Chairman--Dr. B. C. Webb, Dean, School of Agriculture
North Carolina Agricultural & Technical
State University

Opening of the Institute
Greetings---------------------------------Dr. Lewis C. Dowdy, President
North Carolina Agricultural & Technical State University
Introductions
Orientation to the Institute---------------Dr. Arthur P. Bell, Director
Recess (15 minutes)
Keynote Address---------------------------Dr. Jacob J. Kaufman, Director
"Critical Issues in Vocational Education and Strategies for Change in Programs of Teacher Education"
Institute for Research on Human Resources
and Professor of Economics
The Pennsylvania State University
University Park, Pennsylvania

Discussion or Question and Answer Period

SECOND SESSION

1:30-4:30 P.M.

1:15-1:30 Orientation to Small Group Work-------------Dr. H. M. Hamlin
Special Consultant
Center for Occupational Education
and Professor Emeritus
University of Illinois

1:30-2:45 Seminar Discussion Groups
2:45-3:30 Seminar Reports
3:30 Assemble for Group Picture on steps of Student Union Building
Tour of A & T State University

Tuesday, July 25

THIRD SESSION

9:00-12:00 Noon

Chairman--S. C. Smith, Retired Dean
School of Industries
The Agricultural & Technical State University

Purposes, Policies, and Organization of Teacher Education----------------
Consultant: Dr. H. G. Beard, Associate Professor of Sociology and Agricultural Education, North Carolina State University at Raleigh

Recess--10:30-10:45
Discussion or Question and Answer Period

FOURTH SESSION

1:30-4:30 P.M.

Seminar Sessions
Recess--3:15-3:30
Seminar Reports

FIFTH SESSION

6:30-8:00 P.M.

Research Development Grants and Small Project Research------------------
Consultant: John Morrow, Director of Educational Research, U. S. Office of Education, Region III, Charlottesville, Virginia

Discussion or Question and Answer Period

Wednesday, July 26

SIXTH SESSION

9:00-12:00 Noon

Chairman--Dr. Phyllis Greenhouse, Chairman
Department of Home Economics
Agricultural, Mechanical & Normal College
Pine Bluff, Arkansas

Planning and Strategies for Developing More Effective Teacher Preparation Programs--
Consultant: Dr. Robert Worthington, Assistant Commissioner of Education, State Department of Education, Trenton, New Jersey

Recess: 10:30-10:45
Discussion or Question and Answer Period

SEVENTH SESSION

1:30-4:30 P.M.

Seminar Sessions
Recess: 3:15-3:30
Seminar Reports

Thursday, July 27

EIGHTH SESSION

9:00-12:00 Noon

Chairman--Benjamin W. Harris, Director, Extended
Services, The Agricultural & Technical
State University

Identifying and Utilizing Human and Institutional Resources for the Development of Vocational and Technical Education Programs------------
Consultant: Dr. Lewis Jones, Coordinator of Race Relations
Department and Director of Research, Fisk
University, Nashville, Tennessee
Recess: 10:30-10:45
Discussion or Question and Answer Period

NINTH SESSION

1:30-4:30 P.M.

Seminar Sessions
Recess: 3:15-3:30
Seminar Reports
Tour of points of interest in Greensboro

TENTH SESSION

6:30-8:00 P.M.

Banquet--Room 214-215
Speaker: Dr. Lewis C. Dowdy, President
The Agricultural and Technical State University

Friday, July 28

ELEVENTH SESSION

9:00-12:00 Noon

Chairman--Dr. Charles W. Pinckney, Professor and Chairman,
Department of Industrial Education
The Agricultural & Technical State University

Developing College-Industry Cooperative Programs in Vocational Teacher Education--
Consultant: Dr. G. Harold Silvius, Chairman
Department of Industrial Education
Wayne State University
Detroit, Michigan

Recess: 10:30-10:45
Discussion or Question and Answer Period

TWELFTH SESSION

1:30-4:30 P.M.

Seminar Sessions
Recess: 3:15-3:30
Seminar Reports

Saturday, July 29

Tour of Research Triangle — Depart 8:30 A.M. from Student Union Building

Monday, July 31

THIRTEENTH SESSION

9:00-12:00 Noon

Chairman--Dr. John K. Coster, Director, Center for
Occupational Education, North Carolina
State University at Raleigh

Identifying, Interpreting, and Implementing Research Findings in Teacher Education to Improve the Pre-Service Program-------------------------
Consultant: Dr. Glenn Z. Stevens, Professor
Agricultural Education
The Pennsylvania State University
University Park, Pennsylvania

Recess: 10:30-10:45
Discussion or Questions and Answer Period

FOURTEENTH SESSION
1:30-4:30 P.M.

Seminar Sessions
Recess: 3:15-3:30
Seminar Reports

Tuesday, August 1

FIFTEENTH SESSION

9:00-12:00 Noon

Chairman--Mrs. Bernice Johnson, Assistant Professor
Home Economics Education
The Agricultural & Technical State University

Curriculum Construction in Teacher Education for A Changing World of Work--
Consultant: Dr. John K. Coster, Director
Center for Occupational Education
North Carolina State University
Raleigh, North Carolina

Recess: 10:30-10:45
Discussion or Question and Answer Period

SIXTEENTH SESSION

1:30-4:30 P.M.

Seminar Sessions
Recess: 3:15-3:30
Seminar Reports

Wednesday, August 2

SEVENTEENTH SESSION

9:00-12:00 Noon

Chairman--Dr. F. A. Williams, Director
Planning and Development
The Agricultural & Technical State University

Recruitment of Students for Teacher Education Programs------------------
Consultant: C. E. Dean, Professor and Chairman
Department of Agricultural Education
The Agricultural & Technical State University
Panel by Institute Participants
Recess: 10:30-10:45
Discussion or Question and Answer Period

EIGHTEENTH SESSION

Tour of the Research Triangle Park, Durham, North Carolina

Thursday, August 3

NINETEENTH SESSION

9:00-12:00 Noon

Chairman--Dr. Theodore Mahaffey, Chairman
Department of Business
The Agricultural & Technical State University

Recruiting, Upgrading, and Developing Adequate Faculty in the Subject Areas With Special Reference to Occupationally Oriented Skills---------
Consultants: Dr. H. D. Morrison, President
Alabama A & M College
Normal, Alabama

Dr. Glenn F. Rankin, Dean, Academic Affairs
The Agricultural & Technical State University
Greensboro, North Carolina
Recess: 10:30-10:45
Discussion or Question and Answer Period

TWENTIETH SESSION

1:30-4:30 P.M.

Seminar Sessions
Recess: 3:15-3:30
Seminar Reports

Friday, August 4

TWENTY-FIRST SESSION

9:00-12:00 Noon

Chairman--C. E. Dean, Professor
Department of Agricultural Education
The Agricultural & Technical State University

Utilization of Educational Media in the Teaching-Learning Process--------
Consultant: Dr. David Young, Director of Audio Visual
Services, School of Education
Stanford University
Stanford, California

Recess: 10:30-10:45
Discussion or Question and Answer Period

TWENTY-SECOND SESSION

1:30-4:30 P.M.

Seminar Sessions
Recess: 3:15-3:30
Seminar Reports
Presentations
Adjournment

APPENDIX B

RESEARCH DESIGN IN AGRICULTURAL EDUCATION

Glenn Z. Stevens, Professor
Department of Agricultural Education
The Pennsylvania State University
University Park, Pennsylvania
1965

Research is the orderly process of finding answers to significant questions. Inquiries worthy of systematic search for functional solutions demand a creative, imaginative approach. The dynamics of change must be recognized as the basic motivational force. A thorough acquaintance with trends that are taking place in a specific field of knowledge is antecedent to the design of research worth expenditure of time, talent, and funds.

The steps in scientific method are observed in the design of each research study. First is the definition and limitation of the problem. The process moves from a general awareness of need, difficulty or question to the specific statement of a problem for which there is reasonable expectation that a solution may be achieved.

The second phase involves a systematic, critical review of related literature. The investigator must choose or develop a theoretical framework, or construct, which serves as a basis from which alternative possible solutions may be enumerated.

The third step is the formulation of hypotheses to be tested, or questions to be answered. These must be as objective as possible and consistent with the accepted theory and purposes of the investigation.

It is at this point that the student must make certain that the best criterion measures are selected. That is to say, the outcomes of the study must be such that they can be presented with a high degree of clarity in well planned tables. The statistical procedures to be employed and the level of significance also are chosen in advance.

The _fourth_ phase is the execution of the study. It should be done with precision and accuracy in the observations which are made. Results worth reporting are most likely to be forthcoming if adequate controls have been incorporated in the design.

The _fifth_ step is the summarization of the data, the drawing of conclusions and the writing of the report. Judgment must be exercised in refraining from making statements which go beyond the data. Often a study will reveal suggestions for further research.

The preceding may imply that worthwhile research is experimental. Surely there is urgent need for more investigations in education to use appropriate experimental designs. The _Summaries of Studies in Agricultural Education_ continue to report only a few experiments. There has been, however, a steady advance from simple description to the sampling survey as a research method. The object of an analytical sampling is to search for relationships or associations between logically identified factors or causes and observed outcomes, products, processes, situations or conditions. A simple enumerative survey, which is not bound by the requirements of probability sampling theory, may provide useful source data for an analytic survey. Both may aid in the design of an experimental investigation. They can contribute to the specification of independent variables and to the choice of criterion measures.

An analytical sampling survey may be said to be comparative-causal in nature. The method is one of comparison. When effective means have been employed to most rigorous standards of local *controls*, *replication* and *randomization*, probability tests of significance may be made. The results may be reported at a specified level as relationships which may be predicted for the hypothetical population sampled. In order that conclusions drawn may be inferred from the information in the data for the sample groups, errors attributable to biases of selection of observations (cases), to non-response from some, and to accuracy in measurement and estimation must be eliminated or contained within known limits. In other words, use unbiased random sampling from the stratified, or sub-stage classifications. Have not any, or as few as possible, non-responses. Make pilot tests in order to obtain estimates of uncontrolled error and to increase precision of measurement.

As an introduction to the choice of appropriate probability tests of data in multivariate designs, the following tabulation will show the relationship of quantitative and qualitative variables to statistical methods that may be used efficiently:

Independent Variables	Dependent Variables	Statistical Treatment
Qualitative	Qualitative	Chi Square
Qualitative	Quantitative	Analysis of variance (F test) *t*-tests
Quantitative	Quantitative	Correlation-regression or factor analysis

Independent Variables	Dependent Variables	Statistical Treatment
Qualitative and Quantitative	Quantitative	Analysis of covariance
Quantitative	Qualitative	Discriminant analysis

The term "qualitative" as used with independent variables (the controls in an experiment) means that the several treatments or treatment levels are categories (of an attribute) that may be clearly defined. When the term "qualitative" is used to describe the dependent variables or outcomes of a study, it means that the observations (cases) are classified into categories and counted (enumerated).

In contrast, the term "quantitative" refers to measurement data, e.g., pounds, inches, test scores. For each observation (case) a numerical quantity is obtained. The measurements can be arranged in order of size. Means and variances may be computed. The same unit of measurement is used to record the data for observations in each treatment level.

Simple surveys usually result in enumerations that are reported in descriptive tables. If the requirements of random sampling theory are met, then predictions of differences (or association) may be made by chi square test or by tests of proportions.

When the classifications are categories and the criterion data are quantities, analysis of variance or _t_-tests may be used in comparative-causal designs.

Regression and correlation are most efficient in situations where both the independent and dependent variables are quantitative. Modern designs use these procedures much more frequently for the testing of hypotheses than for estimation. Hypothesis testing takes advantage of small-sample techniques.

Discriminant analysis is closely related to multiple regression. It differs in that the prediction for an individual is of a category rather than of a quantitative score. The independent variables in both instances are quantitative scores.

Agriculture provided the classic examples of research in which analysis of variance was used. It was considered that field plots were unsuited to measures at the start of an experiment (reliance was on controls, randomization and replication. Controls were those that made conditions equal, except for the manipulated treatments). Research workers in education have in recent years come to realize the particular advantages of the many kinds of prior and intervening measures that may be used. Shrewd choice among them may result in assigning large fractions of variability that would otherwise have remained in the error term. It is possible, therefore, for us to use covariance analysis with completely randomized, randomized block, Latin square, and factorial designs.

Computer science is advancing rapidly. Application of computers to school needs is about to unfold; the scope of uses will be far-reaching. Research may now be designed that, only a few years ago, would have been prohibitively laborious. But, let us not forget that it is the "software," the ideas and the decision-making ability of men, rather than the "hardware," the electronic equipment, that will determine the ultimate benefits that may be obtained from effort applied to improvements in research design.

APPENDIX - C

DEFINITIONS OF TERMS TO BE USED IN THE INSTITUTE

Occupational education: Education designed to contribute to occupational choice, competence, and advancement.

Vocational education: Specialized education for an occupation other than a technical occupation or a profession.

Technical education: Specialized education for occupations ordinarily requiring two years of preparation beyond high school which emphasizes the science, mathematics, and laboratory procedures related to the occupations for which the students are preparing.

Education for the professions: Specialized education for occupations requiring four or more years of college preparation.

Practical arts: Subjects such as agriculture, business, home economics, and industrial arts which are considered to be a part of general education but which contribute to occupational choice, competence, and advancement.

Area schools: Junior and community colleges, vocational schools, technical institutes, branches of universities, and high schools serving areas larger than local school districts.

Generalized occupational education: Education provided in the elementary schools and high schools which is intended to acquaint with the world of work, assist in the choice of an occupation, aid in planning specialized vocational, technical, or professional education, and provide knowledge and skills usable in a variety of occupations.

Organic curriculum: A curriculum combining and interrelating general and occupational education.

Education policy: Guiding principles for the operation of an educational agency enacted by an official body: a governing board, a legislature, Congress.

Program: (of an education agency) A comprehensive plan developed by the professional staff that is designed to accomplish the purposes stated in official policy.

Procedures: (of an educational agency) Rules and regulations for the day-to-day operation of the agency formulated and adopted by the professional staff.

APPENDIX - D

CRITICAL ISSUES IN PLANNING THE CONTRIBUTIONS OF SMALL COLLEGES TO OCCUPATIONAL EDUCATION

Foreword

This list of issues is intended to start, and not end, discussion. The members of the Institute are best able to state the problems with which the Institute should be concerned.

There is danger, however, in viewing one's problems too narrowly. The list of issues suggests an institutional approach. If an institution can be directed toward important goals and concerted faculty action can be secured in attaining them, the possibilities of each individual engaged in occupational education are improved.

It is assumed that those attending the Institute are influential in their own institutions and could do much toward improving the total situations in their colleges while they are adapting their special sectors to new concepts of occupational education.

Defining the Scope and Nature of Occupational Education

What is the concept of occupational education of your board, your administrators, and your colleagues?

a. Does it include all education designed to contribute to occupational choice, competence, and advancement or is it confined to vocational-technical education?

b. What parts of your institutional program contribute to occupational education?

Defining Institutional Responsibilities in Occupational Education

How were the policies for occupational education in your institutions developed and enacted? How can they be changed?

Which of the following are accepted as responsibilities of your institution?

a. Educating for certain professions.

b. Educating teachers and other specialists in occupational education.

c. Providing background for specialization in professions including professions in occupational education.

d. Developing understanding of and sympathy with occupational education on the part of persons who will not enter the field professionally but may be associated in some way with it.

Are these responsibilities assumed? Should they be assumed?

a. Inservice education of teachers.

b. Provision of curriculum plans and teaching aids.

c. Consultative services to schools with programs in occupational education.

d. Research and development in occupational education.

e. Non-degree programs to prepare technicians.

f. Vocational and technical programs for adults attending part-time.

g. Two-year programs for students who will transfer to other institutions.

h. New programs preparing for the professions.

What are the personnel shortage areas in occupational education? How could your institution help to relieve these shortages?

How do changes in occupational requirements affect your institution?

For which professional positions in occupational education is it feasible for your institution to prepare personnel?

Should more of your students be directed toward programs in other institutions that prepare for positions in occupational education?

a. Should these students transfer at the end of the sophomore year, at the end of the junior year, or after graduation?

b. What means do you have in informing your students of the opportunities and requirements in fields of occupational education for which you do not prepare personnel? Could they be improved?

c. Should you describe in your catalog programs that prepare for specialization in occupational education at other institutions?

For which occupations requiring less than a baccalaureate degree, if any, should your institution be preparing workers?

What programs in occupational education could your institution conduct in cooperation with business and industry? What arrangements for related work experience could be made if these programs were undertaken?

What could your institution do toward providing occupational guidance and training for adults?

What is the nature of the general education required by occupational educators of various types? How much of this could your institution provide?

What attention should be given to occupational education in the preparation of elementary-school teachers? Secondary-school teachers of nonvocational subjects? School administrators? Counselors?

What are the possibilities of "generalized occupational education" in the elementary and secondary schools? How could your institution contribute to providing it?

What are the merits of the "organic curriculum" concept? What implications does it have for your institution?

Organizing to Improve Institutional Contributions to Occupational Education

How could you present most effectively to your colleagues and to deans, presidents, and boards the case for increased attention to occupational education?

Are the various departments of your college which contribute to occupational education organized to engage in a common effort? What kind of organization is needed?

Are there departments in your institution which could be involved in a broadly conceived program of occupational education that are not now involved?

What additions to the staff for occupational education are needed in your institution? Where can the needed personnel be secured? What will be required to attract them?

How can time be secured for replanning your program of occupational education? Can teaching loads be reduced? Courses be eliminated?

What in-service education would your staff need if it were to under-take a more ambitious program in occupational education?

What teaching aids for use in occupational education are available to you?

What contracts do you have and what cooperative arrangements have you made with those conducting occupational education in the local and area schools in your territory? How could they be improved?

What are the sources of information that could guide you in revising your institutional policies and programs relating to occupational education?

Research and Development Possibilities

To what extent are the graduates and former students of your institution engaged in occupational education? What success have they had in securing employment and advancement? What difficulties have they encountered?

What information about the occupational careers of your former students could be used in counseling your present students?

What revision of courses for students majoring in occupational education is needed in your institution? What new courses should be added?

What are the sources of grants which could be used in studying your situation and for planning and revising programs in occupational education? On what terms are these grants available?

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